This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

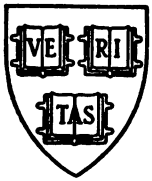
+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

NAT
5055

HARVARD UNIVERSITY



LIBRARY

OF THE

Museum of Comparative Zoölogy

Digitized by Google

MUS. COMP. ZOOL
LIBRARY
JUN 17 1960
HARVARD
UNIVERSITY

Digitized by Google

Digitized by Google

Digitized by Google

Fig. 1.

Fig. 2.

Fig. 3.

C. P. Hobkirk. Del:

Whitehead & Co. Lith:

Digitized by Google

"Labor Omnia Vincit."

THE NATURALIST,

JOURNAL OF THE WEST-RIDING CONSOLIDATED NATURALISTS'

SOCIETY, AND MANUAL OF EXCHANGE IN ALL

DEPARTMENTS OF NATURAL HISTORY,

With which is Incorporated the Entomologists' Journal.

VOL. I.

From May, 1864, to May, 1865.

LONDON:
Simpkin, Marshall, and Co., Stationers' Hall Court.
Huddersfield: Geo. Tindall, 12, New-Street.
1865.

Digitized by Google

MUS. COMP. ZOOL
LIBRARY
JUN 17 1960
HARVARD
UNIVERSITY

Wheldon & Wesley
General funds £ 1/10/-

Digitized by Google

INDEX TO AUTHOR'S NAMES,

(Exclusive of Exchanges.)

A. L. 8.
Amicus, 84
Armitage, John. 166.
Aspdin, J. 26, 337.
B. 219.
Babington, Prof. C., F.R.S., 111.
Baker, J. G. 14, 33, 60, 93, 141, 185.
Beaumont, Alfred. 26, 45.
Beevers, Jas. 108.
Blackburn, J. 29, 110, 239, 350.
Bradley, B. 111.
Brittain, F. 90, 118.
Britten, Jas. 56, 84, 137, 161, 177, 201, 230, 261, 314, 356, 364.
Buckmaster, C. J. 48.
Burgess, N. 333.
Cash, J. 104, 129, 195,
Chappell, Joseph. 223.
Cole, W. 55.
Collins, Rev. John. 286.
Cooke, M. C. 304.
Crépin, Prof. F. 150, 345, 364
Dallas, W. S., F.L.S. 29.
Denny, C. 26, 107.
Déséglise, Alfred. 273, 292, 309.
Dixon, John. 81
Editors. 1, 41, 55, 58, 173.
Evans, W. H., M.D. 193.
Foxton-Firby, E. F.A.S.L. 323, 354.
Fraser, Louis. 44, 127.
G. H., jun. 171.
Gamble, Henry. 77.
Gibb, T. H. 245, 327, 353.
Gibson, B. 268.
Gibson, J. 26, 77.
Gissing, T. W. 151.
Graham, E. 111.
Gregson, C. S. 79, 108, 135.
Grindon, Leo. H. 11, 38, 122, 272.
Gunn, T. E. 44, 75, 127, 145, 170, 207. 240, 305, 338, 352, 373.
Guthrie, W. 32, 58, 174.
Hartley, John. 171.
Heaviside, Percy. 284.
Hebson, R. 221, 255.
Hepworth, J. 24, 73, 126, 159, 187, 340.
Heurck, Prof. Henri van. 172, 242.
Hicks, Wm. 192.
Hobkirk, C. P. 5, 221.
Hodgkinson, J. B. 47.
Horsfall, W. C. 208, 349.
Inchbald, P. 26, 46, 79, 83, 220, 237, 253, 270, 271, 287, 302, 318, 325, 350, 361, 379.
Irvine, James. 158.
J. E. W. 239.
J. F. R. 172, 175, 223.
Jeans, Rev. Geo. 257, 289.
Jessop, R. 174.
Johnson, Rev. J. 286.
Lane, Chas. H. 157.
Liversedge Geo. 26.
Lumb, Geo. 361.
Mason, J. E. 224.
Matthews, G. F., R.N., F.L.S., 49, 69, 88, 157.
Mellor, Thomas, 55.
Melvill, J. C. 59, 154.
Miall, Louis C. 51, 209, 246, 277, 376.

Digitized by Google

Morris, Rev. F. O. 8, 32, 237, 257, 289.
Nelson, W. 45, 302,
Parke, Geo. H. 7, 8, 225.
Parsons, W. E., 78.
Porteus, Wm. 28.
Piscator. 208.
Pratten, Mrs. L. M. 220, 223.
R. B. S. 77, 208.
Ranson, John. 76, 85, 171, 189, 191, 192, 219, 237,
Roberts, Geo. 77, 174, 255, 267, 322.
Saville, S. P. 115.
Saxby, Hy. L., M.D. 237, 349.
Sharpe, R. B. 156, 170, 268, 350, 352.
Sim, John. 3, 48, 128, 159, 185.
Smith, Sidney. 349
Stone, S. 157, 267.
Sutcliffe, Joseph. 108.
T. G. P. 128, 174, 253.
Tate, W. R. 317, 370.
Thompson, Lady Mary. 319.
Ullyett, Hy. 260, 286, 302.
Varley, James. 7. 136, 268.
Veritas. 7.
W. G. 10.
W. H. C. 28, 80, 192,
Ward, Geo. 364.
White, Buchanan, M.D., 53, 68, 120, 132.

Digitized by Google

GENERAL INDEX.

Acorns. 224
Address, Editors'. 1.
Ateuchus, 8, 28, 128.
Auk, Recent exhumation of bones of great, 323.
Barbary, Natural History of. 90, 118.
Bee Keeping. 157.
Birds at Cookham. 170.
———in Northumberland. 244, 353.
———rare, near Richmond. 337.
———Small. 323.
Blackpool, Coast around in March. 361.
Botanical Tour. 126.
British Birds, Notes on. 257, 289.
British Butterflies on Continent. 171.
British Mosses, Notes on. 5, 221.
Brockerdale, Excursion to. 187.
Buckinghamshire Plants. 56, 137, 161.
Butterflies of High Wycombe. 260.
————British, on the Continent. 171.
CORRESPONDENCE :—
Destruction of Rare Birds. 84.
Entomological Collection in British Museum. 8, 32.
Flora of Buckinghamshire. 364.
On Discovery of New Mosses. 31.
Royal Horticultural Society. 10, 110.
Caterpillars, preservation of. 7, 29.
Chaffinch, Curious nesting place of. 237.
Chloranthie in Verbascum Thapsus. 252.
Cleaning skeletons. 192.
Cock cherishing feelings of revenge. 77.
Coleoptera, relaxing. 80, 111.
Cromaghlan, Ascent of. 193.
Cuckoo. 237.
Cuckoo, Habits of, in confinement. 284.
Destruction of Fish. 208.
Destructiveness of the Wood Pigeon. 191.
Dogger Bank, Dredging on. 225.
Double Varieties of Wild Plants. 58, 59, 159.
Dwarfism and Atrophy. 150.
Early Spring Flowers. 11.
Eggs of Money Spider. 171.
Entomology of Norfolk. 338, 373.
Exchange. 8, 29, 48, 60, 80, 111, 128, 176, 224, 239, 256, 272, 288, 304, 326, 352, 365.
Excursion to Brockerdale. 187.
Ferrets. 352.
Fire, Loss of Specimens by. 41.
Flora of Manchester. 272.
——— Essex, Additions to Gibson's. 314.
Food of Ling and Cod. 237.
Forbes' Malacologia Monensis, Additions to. 7.
Freshwater Mollusks. 350.
Frogs and Toads. 24, 73.
Frog and Toad, enemies of larval. 340.
Galls, Oak. 27.
—— Rose. 83.
—— Willow. 46.
—— Yew. 79.
Ghost Moth, Notes on number of eggs of. 78.
Grafting, Curious effect of. 173.
Grouse, Red. 26.
Hæmatozoa, Origin of, in Human and Animal Systems. 354.
History of my Redstarts. 189.
Hybridism. 28.
Isle of Wight, Winter Rambles in. 287.
Keepers of Seals and Otters, Hints to. 349.
Kingfisher, Notes on. 107.
Lake District, A day in the. 135.
Larvæ, Abundance of, in 1864. 286.
Lepidoptera, Captures of. 7, 47.
———— (Macro) of Perthshire. 53, 120, 132.

Digitized by Google

Llandudno. 379.
Llangollen, A day at. 108.
Magpie, Notes on Azure-winged. 49, 69, 88.
Malham, Botany of. 209, 246, 277, 376.
Micro-Lepidoptera, Preserving of. 224.
Microscopic Gossip. 333.
Molluscs Freshwater. 350.
Moths, Rare, at High Wycombe. 302.
Mustelidæ of Northumberland. 327.
Natural History. 3.
Ornithology of Norfolk. 44, 75, 145, 156, 207, 240, 305.
——— Suffolk. 45.
Ormes Head, Rambles at the. 379.
Plants of Aberdeenshire. 363.
——— Bisham and Great Marlow. 154.
——— Buckinghamshire. 56, 137, 161.
——— Frodsham. 172.
——— Hampton Court, &c. 157.
——— Lincolnshire. 84.
——— Pontefract. 255.
——— Teesdale. 151.
——— Notes, on rare and interesting. 38, 122.
Plover, Golden, variety of. 237.
Reports of Societies :—
Accrington Naturalists'. 266.
Amateur Botanists'. 81, 135, 168, 280.
Belfast Field Naturalists'. 169, 235.
Birmingham Naturalists' Union. 43, 54, 168.
Doncaster Philosophical. 168, 219.
Edinburgh Botanical. 316, 360.
Halifax Naturalists'. 81.
Huddersfield Naturalists'. 71, 125, 215.
Leeds Naturalists'. 280.
Manchester Field Naturalists'. 30.
Oswestry Naturalists' Field Club. 72.
Southport Naturalists' Club. 43.
Wakefield Naturalists'. 31, 72.
Warrington Field Naturalists'. 125.
West Riding Consolidated Naturalists'. 43, 124, 300.
Reptiles, Observations on. 370.
Reviews. 134, 175, 234, 299.
Robin. 77.
Robin's Nest, Curious place for a. 26.
Rosa Alpina in Britain. 173, 184.
—— Observations on Classification of Species of. 273, 292, 308.
Roses, Review of British. 14, 33, 60, 93, 141.
Rotifera, Notes on. 104, 129, 195.
Sacred Beetle of Egyptians. 29.
Scarbro', Field-days near. 220, 237, 253.
Scottish Summits. 302, 318, 325, 350.
Seal, Capture of. 236.
Sexes of Kingfisher and Owl. 115.
Sherwood Forest, Excursion to. 111.
——— Three Days at. 268.
——— Entomological Notes from. 269.
Slugs, Method of preserving. 253.
Song Thrush, Remarkable Attachment of, to place where it hatched a brood of young, 45.
Sparrow Hawk, Instance of Audacity in. 208.
Species, Considerations on, *apropos* of M. Jordan's New Work. 345, 365.
Spontaneous Exotics. 177, 201, 230, 261, 356.
Stray Rambles. 47.
Teesdale Plants. 151.
Toad, Habits of. 166.
—— Winter quarters of. 219.
Tree-sparrow. 174, 223.
Willow Wrens, Rev. Gilbert White's Three. 85.
York, Field-day near. 270.
Zoological Society's Collection, additions to. 44.

Digitized by Google

INDEX SPECIERUM.

[N.B.—This Index includes only those species of which special mention is made in this volume. All species casually mentioned, local lists, and exchanges, are excluded.]

ZOOLOGICAL.

Abraxas grossulariata 136.
Accentor modularis 146
Acherontia atropos 55, 157, 221
Acidalia inornata 192
Alauda arvensis 146.
A. calandra 88.
A. cristata 89
Alca impennis 323
A. torda 243
Alcedo hispida 107
Anas boschas 149
A. clangula 307
A. fuligula 26
A. fusca 307
A. mollissima 307
A. querquedula 45
Anguis fragilis 372
Anolis velifer 373
Anser ægyptiacus 45
Arctia Caja 136
Ardea stellaris 306, 337
Argyroneta aquatica 109
Ateuchus latticollis 92
Bombycilla garrula 337
Bombyx Cynthia 319
Bufo calamita 317, 342, 371
B. vulgaris 166, 370
Caprimulgus europeus 149
Carbo cormoranus 243
Cecidomya rosaria 46
C. salicis 46
C. Taxi 79
Charadrius morinellus 45
Cidaria larentaria 47
Cinclus aquaticus 219, 306
Clostera anachoreta 28
C. curtula 28
Coccothraustes vulgaris 267
Columba livia 26
C. palumbus 149, 191
Colymbus arcticus 353
C. septentrionalis 45, 243
Corvus corone 148
C. frugilegus 148
C. monedula 148
Crephasia lepidana 47
Crotalus horridus 371
Crymodes Templi 26
Cryptocampus angustus 46
Cuculus canorus 149
Cygnus musicus 306
Cynips aptera 271
C. Rosæ 83
Dasypolia Templi 285, 286
Distoma hepaticum 355
Emberiza citrinella 76, 147, 191
E. cia 89
E. miliaria 147
E. nivalis 77
E. schæniclus 147
Empis borealis 47
Eupithecia nanata 7
E. pulchellata 47, 136
Falco æsalon 26

Digitized by Google

F. apivorus 240
F. cineraceus 241
F. buteo 337
F. cyaneus 241
F. haliæëtus 208, 240, 244, 337
F. milous 70
F. nisus 354
F. tinnunculus 44, 145
Felis catus 44
Fringilla borealis 148
F. cælebs 147
F. cannabina 148, 207
F. carduelis 148
F. cerinus 89
F. chloris 147
F. citrinella 90
F. coccothraustes 127
F. domestica 147
F. incerta 128
F. linaria 148
F. montana 242
F. spinus 156
Floscula cornuta 200
F. ornata 198
Gallinula chloropus 149
G. porzana 338
Glyphipteryx Haworthella 47
Hadena glauca 55
Helix rotundata, *var.* alba 45
Hepialus humuli 78
Hirundo riparia 149, 208
H. rupestris 90
H. rustica 90
Hæmatopus ostralegus 242
Lanius excubitor 241, 267, 337
Lestris Richardsoni 243
Lima alpina 47
Limnea involuta 193
Limosa melanura 243
Loxia curvirostra 156, 337
L. pyrrhula 148
Lutra vulgaris 327
Machetes pugnax 243
Melicerta ringens 129
Mergus albellus 307
M. merganser 307, 338
M. serrator 307
Muscicapa atricapilla 26, 108
M. grisola 75, 145
Necrophorus vespillo 192
Notodonta cucullina 78
Nucifraga caryocatactes 242
Numenius arquatus 243
N. phæopus 243
Pelias berus 371
Perdix cinerea 149
P. coturnix 306
P. rubra 149
Phoca vitulina 236
Pica cyanea 49, 69, 88
Picus major 75
Picus minor 156, 268
P. viridis 148
Planorbis marginatus 108
Podiceps cornutus 350
P. cristatus 353
P. rubricollis 349, 361.
Physa hypnorum 302
Rana pipiens 371
R. temporaria 371
Ripiphorus paradoxus 157
Rissoa calathus 7
R. subumbilicata 7
Scolopax major 243
Simia satyrus 44
Smerinthus ocellatus 239
Solenobia triquetrella 47
Stauropus Fagi 78
Stephanoceros Eichhornii 105
Sterna nigra 75, 243
Strepsilas interpres 45
Strix aluco 75
S. brachyotus 241
S. flammea 305
S. otus 145, 240
Sturnus vulgaris 78, 148, 208
Sylvia ænanthe 146,
S. cisticola 88
S. hippolais 87
S. luscinia 92
S. melanocephala 88
S. provincialis 88
S. rubecula 146
S. sibilatrix 85
S. suecica 71
S. trochilus 86, 146
Talpa vulgaris 79
Testudo pusilla 373

Digitized by Google

Totanus fuscus 338
T. glottis 45, 243
T. hypoleucos 75
T. ochropus 75, 246, 338
Tringa variabilis 26
T. Canutus 45
Trochus Montagui 7
Triton palustris 370
Turdus merula 76, 146
T. musicus 145, 170, 207
T. pilaris 145
T. torquatus 75, 241
T. viscivorus 192
Unio margaritiferus 7, 81, 220
Upupa epops 337
Vespa vulgaris 157
Yunx torquilla 45, 75
Zootoca vivipara 372

BOTANICAL.

Aconitum Lycoctonum 181
A. Stoerkianum 181
Adonis æstivalis 179
A. flammea 179
Adoxa moschatellina 11
Anchusa sempervirens 248
Anemone nemorosa 59
Arabis alpina 231
A. arenosa 231
Arenaria balearica 264
A. fastigiata 264
Argemone mexicana 201
Asperula taurina 158
Asplenium Adiantum-nigrum 55
A. marinum 175
A. Trichomanes 55
Barbarea intermedia 206, 232
Bellis perennis 124
Boletus cyanescens 303
Buffonia tenuifolia 265
Camelina dentata 203
Cardamine bellidifolia 205
Chelidonium laciniatum 202
Clypeola Ionthlaspi 203
Crambe orientalis 204
Cucubalus baccifer 265
Deutzia scabra 13
Delphinium Ajacis 180
D. orientale 181
Dianthus barbatus 261
Dielytra formosa 202, 232
Diplotaxis erucoides 231
D. viminea 231
Draba rupestris 52
D. verna 51
Enarthrocarpus lyratus 205
Epimedium alpinum 183
Epipactis latifolia 138
E. media 138
E. ovalis 250
Erodium ciconium 359
E. cygnorum 359
E. littoreum 359
E. malacoides 359
Eruca sativa 204
Erucastrum obtusangulum 232
Erysimum orientale 206, 233
E. Perofskianum 206, 233
E. virgatum 206
Escholtzia californica 201
E. crocea 201
Farsetia incana 203
Ficaria verna 12, 48
Frankenia pulverulenta 234
Fraxinus excelsior. 12
Geum rivale 123
Glaucium phœniceum 201
Gypsophila Vaccaria 262
Helianthemum canum 212, 380
H. ledifolium 234
H. vulgare 212, 380
Hibiscus Trionium 357
H. vesicarius 357
Hieracium (sp.) 246
Holcus lanatus 122
Hutchinsia alpina 51

Digitized by Google

Hypecoum procumbens 202
Hypericum Androsæmum 357, 358
H. anglicum 357
H. barbatum 359
H. hircinum 357, 358
Iberis umbellata 202
Inula Dysenterica 159
Lathyrus pratensis 123
Lavatera alba ? 356
L. Cretica 356
L. Olbia 356
L. punctata 356
L. trimestris 356
Lepidium Iberis 204
L. sativum 203
Linaria purpurea 137, 174
Lunaria rediviva 203, 232
Lychnis coronaria 264
L. vespertina 124
Malcolmia africana 230
M. littorea 230
M. maritima 230
Malva Alcea 265
M. ambigua 266
M. crispa 266
M. Nicæensis 265
M. parviflora 266
M. pusilla 265
M. verticillata 266
Moricandia arvensis 231
Neslia paniculata 203
Neotinea intacta 361
Nigella arvensis 181
N. Damascena 181
N. sativa 181
Pæonia corallina 181
P. officinalis 181
Papaver nudicaule 201
P. setigerum 172
Pentas carnea 13
Phyteuma spicatum 123
Pinus Coulteri 361
Platystemon californicum 202
Polystichum Lonchitis 277
Primula vulgaris, β elatior 249
Ranunculus alpestris 179
R. Ficaria 48, 58
R. gramineus 180
R. muricatus 180
R. repens 140
R. trilobus 180
Raphanus Landra 205
R. sativus 205
Rapistrum perenne 205
R. rugosum 205
Reseda gracilis 233
R. odorata 233
R. Phyteuma 233
Ribes sanguineum 13
Rosa alpina 173, 185, 186, 316
R. Andegavensis 100
R. arvatica 101
R. arvensis 141
R. Bakeri 102
R. Blondæana 103
R. Borreri 63
R. cæsia 100
R. canescens 97
R. canina 93
R. celerata 99
R. consimilis 17
R. coriifolia 98
R. coronata 20
R. Crepiniana 97
R. cryptopoda 66
R. dumalis 94
R. dumetorum 96
R. farinosa 38
R. Hibernica 22
R. involuta 21
R. Jundzilliana 65
R. lutetiana 94
R. micrantha 62, 63
R. mollissima 33
R. myriacantha 16
R. Ozanonii 17
R. platyphylla 95
R. pomifera 35
R. pruinosa 96
R. Robertsoni 21
R. rubella 17
R. rubiginosa 60
R. sabauda 20
R. Sabini 18, 21
R. sepium 67
R. spinosissima 15
R. spreta 16
R. subcristata 97

Digitized by Google

R. subnuda 21
R. sylvicola 62
R. tomentella 102
R. tomentosa 36
R. uncinella 95
R. urbica 94
R. verticillacantha 100
R. vinacea 101
R. Watsoni 98
Sagina nivalis 316
Salix Davalliana 364
S. petræa 364
Schistostega osmundacea 221, 239
Silene Armeria 263.
S. catholica 263
S. rubella 264
Sisymbrium austriacum 230
S. Columnæ 230
S. pannonicum 230
S. polyceratium 230
Stellaria scapigera 264
Tetraphis pellucida 5
Thalictrum majus 179
Thlaspi alpestre 211
Trifolium 123
Vella annua 204
Verbascum Thapsus 252
Veronica peregrina 128

Digitized by Google

Digitized by Google

THE NATURALIST.

"LABOR OMNIA VINCIT."

ADDRESS.

At the commencement of our career it is perhaps necessary to make our readers acquainted with the reasons which have induced us to embark in a boat which has twice suffered shipwreck; to do this no lengthened address is necessary.

The demise of the "Weekly Entomologist" left a gap in Entomological literature which was keenly felt by the working student in that science; the facilities for making exchanges which were afforded through the columns of that periodical, as well as of its predecessor the "Entomologists' Intelligencer" brought collectors into correspondence with each other, and their collections were at once enriched with species which would have taken years to obtain had no such means of communication existed. The capture of a rare species was at once made known, and a love for inter-communication among Entomologists, and especially among the *young* students of that science, was fostered and encouraged.

Although the two former Entomological periodicals failed through lack of sympathy and encouragement on the part of those who ought to have been contributors to their pages, there is reason to believe that a Magazine conducted on similar principles, but on the more extended basis of Natural History in the widest signification of the term, containing papers and observations in Botany, Zoology, and Palæontology, instead of confining itself to Entomology, and affording facilities for effecting exchanges of specimens in all those departments of Natural Science, would have a much better chance of success; and it is in order to put this to the test that "THE NATURALIST" has been projected.

The rise and progress of "Naturalist Societies" also increase the hope which the projectors of this Magazine have of its success. There is scarcely a town in the kingdom, and in the North of England scarcely a village, in which some such society, either "Botanical," or "Entomolo-

Digitized by Google

gical," or "Naturalist" does not exist, whilst "Field Clubs" are continually exploring every portion of the country. The West-Riding Consolidated Naturalist Society alone, comprising six societies within an area of twenty miles, numbers upwards of 200 members; the Northern Entomological Society (Liverpool) about the same number; and it would not be too much to affirm that in Yorkshire and Lancashire alone, 2,000 students of nature are banded together in societies of this kind. It is our earnest wish that "THE NATURALIST" may be the means of binding them still more firmly together, and making them better known to each other and to their brethren in more distant parts of the country, and of increasing their zeal and love for natural science. In order to further this object we should be glad to be furnished with, and at a future time to publish, a list of such societies, with the names and addresses of the secretaries, and the number of members. The Transactions of these societies shall always have a place in the pages of "THE NATURALIST" if communicated to us by some officer of the society, and we anticipate in the list of natural objects found during the excursions, much information tending to throw light on the geographical distribution of species.

In order to make "THE NATURALIST" a success, we earnestly ask for the co-operation and encouragement of all who bear the name, in whatever department of the work they may labour; without this assistance success is impossible, with it, a certainty. Let no man shrink from the task of contributing to its pages, under the impression that he is incompetent to do so. *Any* observation made of *any* natural phenomenon by *any* person, if made carefully, truthfully, and simply as it occurs, is worthy of preservation, and will assist in filling up the great storehouse of facts, from which at some future time important generalizations may be made.

We refer with feelings of grateful pleasure to the list of gentlemen who have kindly promised us their assistance, as an earnest of the support we shall hereafter receive, and as a guarantee that our Magazine shall not suffer in quality by comparison with its contemporaries, and we sincerely hope that the number of contributors may be increased with every issue. The field of Natural History is wide, and we ask every labourer to enter the lists, and we can assure them that no effort shall be spared by us to make the pages of "THE NATURALIST" in every way a worthy repository for their observations, and an unbiassed exponent of their opinions.

Digitized by Google

NATURAL HISTORY.

By John Sim, A. B. S. Ed.

There is no subject which presents more attractions to the mind of man, than the study and investigation of his great Creator's handy-works. The extent and universality of Nature's vast empire, places the study of Natural History in a greater or less degree within the reach of all. It would be well were the desire commensurate with the opportunity; such, alas, is not the case, else long ere now much that is hidden and obscure, would have been lucid as a sunbeam. Did the careless and unthinking, the hoarders of gold and silver, and the votaries of worldly pleasure, conceive for a moment the intense, lasting, pure and unalloyed enjoyment derived from the examination of objects of Natural History, they would abandon their unsatisfactory pursuits, and embrace with alacrity, and pursue with zeal and ardour, those studies which have ever been pursued and admired by the great and the good of all ages.

The immense multitude of objects everywhere spread around us is generally divided into three great departments, commonly designated kingdoms, viz.—the Animal, Vegetable, and Mineral; the two first comprising the organic, the latter the inorganic, or animate and inanimate portions of material nature. Natural History, properly speaking, includes the history of each, but is now more generally applied to that section which treats of the nature, classification, habits, habitations, &c., of animals only; embracing all the various forms and species of animated beings, from the mammoth imbedded in Siberian ice, to the infusorial monad of our stagnant waters. The vast domain of nature can never be fully explored, her attractive resources being infinite and inexhaustible. This consideration, so far from intimidating her votaries, ought to act as a powerful stimulant to their exertions, forasmuch as they know that there is ample employment for all, however manifold the discoveries, however extensive the investigations. The Naturalist ought ever to bear in mind that in science, as in armies, there are pioneers as well as generals, men who clear the way and remove obstacles as effectually in their own sphere, as they who have conquering legions at command. The great field of nature is sufficiently spacious to afford ample and constant employment for all who take pleasure therein.

Digitized by Google

The study of nature possesses an incalculable advantage over all secular pursuits, in so far that while it improves and elevates the heart of man, it never palls nor pollutes his senses, and unlike all other worldly callings and recreations, it is relished alike by the youth of tender years and the hoary head of three score and ten. Such being the ennobling tendency of the study of nature in general, and the animal kingdom in particular, why are the labourers in this kingdom so few? Why are so many standing all their lifetime idle, when there is ample employment for all?

The study of Natural History always improves, but never deteriorates the moral perceptions. The greatest and the best of all ages have ever been ardent students and admirers of nature's works, nay, we need not hesitate to state that they in general have been the very benefactors of our race, the true friends of our common humanity. There are two classes of men who more than all others have ever laboured hard and stedfast, in order to secure the moral improvement and social and individual happiness of mankind—clergymen and physicians—and they perhaps more than all others, have been ardent admirers and untiring investigators of Natural History. From the days of Aristotle to the present time such has been the case, and such will likely continue to be so while time endures. It is however a cheering feature of the present day that, though such men act as generals in this wide field, there is a large army of private soldiers acting in concert, and co-operating with the plans and purposes of their honourable and talented commanders; such being the case, and having before us the labours and examples of such illustrious worthies, let each lover of nature's wonderful works endeavour to enlist the labours and sympathies of others in the contemplation and examination of the infinite number of sentient beings which traverse the forest, wing the air, glide in the waters, or crawl on the ground. To the christian the study of the great Creator's works ever affords inexpressible delight, and happy, truly happy is he who, while gazing with love and admiration on the vast profusion of beings which tenant the air, the earth, and the ocean, can exclaim with filial love and confidence—

"My Father made them all."

The proprietors and conductors of this new-born serial undoubtedly deserve the support and sympathy of all well-wishers of society, their object and aim have unmistakeably been good, a sincere desire to promote the mental and moral well-being of their fellow men. May they receive

Digitized by Google

that support and encouragement which they deserve, and may the Giver of all good crown their efforts with great success: such is the prayer of the writer, may such be the desire of the reader, and if so this new periodical will be conducted with honour and credit to its proprietors, and benefit to society at large. I close these remarks with the eulogium of the French poet, as nature's vast army passed in review before the mental vision of this pleasing writer.

"Quelle magnificence dans le plan de la creation terrestre!
Quelle grandeur! quelle profusion!
Quelle complaisance à organiser la matiere,
Et à multiplier les êtres sentants!
Nous voyons les animaux répandus
Sur toute la surface de la terre,
Dans toute l'entendue des eaux,
Et jusques dans les vastes contours de l'atmosphere,
La Mitte, comme l'Elephant;
Le Puceron, comme l'Autruche!
Le Vibrione comme la Baleine, ne sont qu'un composé d'animaux;
Toutes leurs liquers en fournissent!
Tous leurs vaisseaux en sont semés!"—Bonnet.

Bridge End, Perth, April, 1864.

Observations.

Notes on British Mosses.

By C. P. Hobkirk.

I.—*Tetraphis pellucida, Hedw.*—The subject at the head of the present notice was gathered on 2nd April, in Grimescar Wood, near Huddersfield, and is I believe the first time it has been found in this neighbourhood, hence the precedence given to it, as the first moss in this intended series of "Notes." One word by way of introduction. It is my intention to supplement in some measure, the short and terse descriptions given in text books, and to render the discrimination of the species more easy to young bryologists, and at the same time, I may perhaps be able, in some instances, to contribute somewhat towards the general mass of scientific facts.

The moss under consideration was originally named by Linnæus, (who was followed by Dillenius), *Mnium pellucidum*, but was re-christened by Hedwig, *Tetraphis pellucida*, under which name it now stands, both in Smith's English Botany, by Hooker, and in Wilson's Bryologia Britannica. Its present generic name is derived from a Greek word, *tetraphos*, "having four prominences"—the specific name *pellu-*

Digitized by Google

cida, from the transparent appearance of the leaves. In our woods, in spring time, its delicate light green frondage may be found, covering the rotten stumps of old trees in considerable abundance. At this time of the year it presents a rather peculiar appearance; being apparently merely a number of minute cups supported by very short stems, which are hidden by the small transparent leaves. If we place these small cups under the microscope, with 1-inch objective, we shall find they are filled with a number of small granules called gemmæ. On increasing the power to the $\frac{1}{4}$-inch we shall observe that each of these gemmæ is composed of a number of cells, arranged in a circular manner, the central ones being full of small granules, the outer ones generally empty and transparent—and further, that each gemma is furnished with a pedicel or footstalk, composed of single four-sided cells placed end to end, by which they appear to be attached to the cup, which bears them. The lower leaves of the stem are ovate and somewhat pointed, with the margin plane and entire; the nerve is thin and ceases below the apex of the leaf. The fruit which appears in mid-summer, or later, is elevated on a short reddish footstalk, (seta). The capsule, when ripe, is of a yellowish-brown colour, and has a red tumid border round the mouth,—the calyptra is somewhat whitish, with a brown apex, and is furnished with eight or nine ribs or furrows, reaching from the apex to the mouth, each rib terminating in a laceration at the base. The teeth, or peristome, are four in number, hence the name (Tetraphis,) and are united, below and inside the mouth of the capsule to the collumella, which is divided with it into four pyramidal teeth. Bruch and Schimper remark on the peristome of this moss, that "in this genus it does not exhibit the usual composition of 32 primary divisions; and that each of the four teeth has from 8 to 14 longitudinal striæ, the cellular tissues of which they are composed being similar to that of *Buxbaumia aphylla*.

In Hooker's Smith's English Botany another species is described, under the title of *T. Browniana, Grev.*, but this is now removed into a separate genus, *Tetradontium*, of which two species are described in the *Bryologia Europea*.

Synonyms:

Tetraphis pellucida, Hedwig, Schwaegr, Bridel, Hooker and Taylor, Bruch and Schimper.
T. cylindrica, Funck.
Georgia mnemosyne, Ehrh.
Mnium pellucidum, Linn.

Huddersfield,
April, 1864.

Digitized by Google

Occurrence of Pallas' Sand Grouse in the Isle of Man.—In May last six specimens of Pallas' Sand Grouse *(Syrrhaptes puradoxus)* were observed at Kirk Santon, about six miles from Douglas. I succeeded in obtaining a fine male specimen, which has been purchased by Capt. Clement Hill, and is now in the collection of Lord Hill, near Shrewsbury.—JOHN GOLD, Castle-street, Douglas.

[Our correspondent encloses a well executed drawing of the bird in question, which leaves no room to doubt its identity.—EDS.]

Additions to Forbes' "Malacologia Monensis."--During a few days dredging on the Manx coast, in July last, my operations extending from Douglas Bay to Castletown, I met with the following species, which are new to the Manx fauna:—

Rissoa calathus, Forbes; mostly dead specimens, 10 fms, off Port Soderick.

R. subumbilicata, Mont.; common on fuci, in 5 to 10 fms, Derbyhaven Bay.

Trochus Montagui, Gray; one specimen, 15 fms, off Douglas Head.

I also noticed *Ancylus fluviatilis, Müll,* in a small stream near Douglas, though not common.—GEO. H. PARKE, Mornington Place, Halifax.

Lepidoptera.—I have taken and bred the following Insects since Feb. 6th, 1864 :—

Feb. 6, *Phigalia pilosaria.*
„ „ *Hybernia progemmaria.*
Mar. 12, *Nyssia hispidaria.*
„ „ *Anisopteryx Æscularia.*
„ 16, *Biston hirtaria.* Bred.
„ 20, *Nyssia zonaria.* Bred.
„ „ *Hybernia rupicapraria.*
„ „ *Larentia multistrigaria.*
Apr. 14, *Selenia lunaria.* Bred.
„ 20, *Saturnia Carpini.* Bred.
„ „ *Anticlea badiata.*

I think we shall have a good season for insects, for all the common sorts are prolific, such as *Gothica, Rubricosa, Instabilis, Stabilis,* &c.—JAMES VARLEY, Almondbury Bank, Huddersfield.

Eupithecia nanata.—On Thursday last (April 21) several specimens of this pretty species were brought to me. This is very early—I do not remember seeing it in former years until the second week in May.—GEO. H. PARKE.

Notes and Queries.

Preservation of Caterpillars.—Will you allow me to ask if any of your readers will supply me with any new or better mode for the preservation of Caterpillars than that practised by Mr. Weatherhead some twenty years ago, viz. :—"The animal is killed in spirits of wine, a small puncture or incision is then made at the tail, by which the contents of the abdomen are gently

Digitized by Google

pressed out; the skin is filled with dry sand, and restored to its natural position. When dry, the sand is carefully shaken out, and the specimen affixed, by strong gum, to a piece of card."—VERITAS.

Ateuchus.—Can any of your readers inform me why the *Ateuchus* is called the sacred Beetle of the Egyptians. —A. L.

Unio margaritifera.—I should be glad to learn through the medium of "The Naturalist" whether this species is still to be found in the Manx rivers; Forbes' Monensis, and most of the Manx Guides, give as its habitat the Black river, near the Nunnery Grounds, Douglas. I have searched this place in vain. —GEO. H. PARKE, Mornington Place, Halifax.

Exchange.

Gratis.—W. CASH, Delph-street, Halifax, will be very glad to assist any BEGINNERS in British Land and Fresh Water Shells—provided that they pay postage expenses.

Coleoptera.—I have specimens of the following Beetles for exchange, or any person (if a coleopterist) wanting any of them can have them by sending a box, post paid. I should be glad to open correspondence on Coleoptera with any one: I have collected about two years. *Cicindela hybrida, Carabus catenulatus, Carabus nitens, Colymbetes nigroæneus, Acilius sulcatus, Aphodius 4 pustulatus, Cionus scrophulariæ,* (would want relaxing), *Coccinella* 11 *punctata.*—WILLIAM HY. CHARLESWORTH, East Parade, Huddersfield.

Shells.—Having a great many land and fresh-water shells in duplicate, I should be glad to exchange them for any of my desiderata in Land, Fresh-water, or Marine.—JOSEPH HEBDEN, Sandal Common, Wakefield.

Correspondence.

THE ENTOMOLOGICAL COLLECTION IN THE BRITISH MUSEUM.

BY THE REV. F. O. MORRIS.

Nunburnholme Rectory,
April 18, 1864.

Sir,—Of every one hundred persons who have entered in at, and then come out of the front door of the British Museum, after having gone the round of the rooms, ninety-nine would say that they had seen the Entomological Collection, and that very beautiful it was. The fact is, that not more than one in an hundred of those who visit our National Gallery of Nature, either sees the Entomological Collection that it contains, or has any knowledge of its existence. After entering the front door, if a person wishes to see the collection, which is probably the finest in the world, and well worth any one's inspection, which it would

Digitized by Google

take far more than one visit to do, even very cursorily, he must turn to the left through the old Statuary Gallery, then to the right along the Egyptian one, and then at the end of it to the left through a door down a narrow and rather dark passage, which will lead him to the "Entomological room." What ordinary visitors have seen are merely some showy duplicates exposed to the light in open cases upstairs.

The Entomological room contains, I believe, 3,000 cabinet glazed drawers of insects, vast numbers of them in each of the Orders, of the most wonderful beauty of colour and markings, or the most astonishing variety of singular and fantastic shapes and forms.

I read with much interest the letter of a correspondent of the "*Times*" H. C. recently, having long contemplated writing on the same subject myself, and agree with every word that he says, except as to the facility with which he thinks that the work so necessary to be done might be accomplished; here I must say he is lamentably mistaken. Mr. Frederick Smith, whose name I am glad he has mentioned, is indeed a most valuable public officer in that department; his politeness is only equalled by his patience, and his labours are worthy of all praise. But will it be believed that since the loss to the Museum of the energetic services of Mr. Adam White, Mr. Smith is the single and only officer in charge of this vast collection, to which such great additions are being made almost every day, some of them most extensive; as for instance the splendid collection recently presented to the country by Mr. E. Bowring. Not only so, but even that one officer cannot devote his time to the work that is so heavy, but in addition to laborious scientific correspondence and ordinary official letters, he is continually interrupted by visitors, scientific and unscientific, either of whom, as may be supposed, will be often equally exacting, and equally prove a trial to his patience, great as it is.

The whole collection, in consequence, is in such a state, that not the small and temporary staff that the "*Times*" correspondent sanguinely thinks will be sufficient, would at all suffice for anything like the amount of work that has to be done, but several permanent paid officers should be appointed, and with much better salaries than have heretofore been paid; one, I would say, for each Order, and they should further be assisted by several professionals in the work of re-setting the whole collection, as suggested above.

(To be continued.)

Digitized by Google

ROYAL HORTICULTURAL SOCIETY.

To the Editors of the Naturalist.

Gentlemen,—Would you be kind enough to allow me a small space in your first impression, though I feel some little delicacy in asking this favour, knowing that you will be pressed for space in this your first issue. I doubt not you are aware that the Royal Horticultural Society, South Kensington, have offered prizes for collections of the dried plants of each county in the united kingdom. They state that this is for the encouragement of Scientific Botany among all classes. But surely they do not think of what are termed *working men* competing for these prizes, and more especially in an extensive county like Yorkshire; now I should suppose that this, emanating from a society like the Royal Horticultural Society, is intended for the encouragement of Scientific Botany amongst young gardeners, more than any other class of men: this may, or may not, be the case. They further state the judges will not award the prizes unless the collection is a fair representation of the plants to be found in the county in which they have been collected. I profess to know something of Yorkshire, as well as of the plants that are to be found growing wild in it, and I have no hesitation in stating that it is a moral impossibility for any *one man* to collect anything like a representation of the Flora of Yorkshire in the time specified by the society. They must naturally think that there is something very *fascinating* in connection with a medal, to induce a man to give up his employment and set out collecting, and this he will have to do, and a meagre affair it will be when the season is over; and if his time is worth anything his collection must cost him in time, railway travelling, &c., not less than *One Hundred Pounds;* I cannot see how he will be benefited by this outlay, or what benefit science will receive from it.

They state the collection must be arranged according to any natural method, the collector to follow some work on British Botany; there are three or four works mentioned which no doubt are preferred by the Society, so that if the intending competitor is not already possessed of one of these works, he must at once procure one to carry out the object they have in view, and to make room for new editions that will no doubt shortly appear with new localities attached; that is on condition that this work is carried out to the entire satisfaction of the Society. This is the benefit the working botanist will receive for his labour. He will in the first place give the information, and in the next he will have a new edition of some works on British

Digitized by Google

Botany ready for him to purchase at his earliest convenience. On the 31st December, 1864, the collections must be forwarded to the Royal Horticultural Society, South Kensington—a sealed letter must accompany each collection, containing a declaration, signed by the collector, in the following terms—"The plants which accompany this note were collected by myself from the fields and woods within the limits of the County of Yorkshire," or any other as the case may be. There is one thing that must strike very forcibly the mind of any thinking man, that is this, that the collector must sign a declaration where and when collected, but not one word about *naming*. Why should not the collector be bound to name them himself, instead of getting the assistance of any scientific man he can? It is evident from this that good specimens well mounted, a truthful list of localities, and time of flowering, is all that is required to carry out the object of the society.

You will be glad to hear that it is the intention of several gentlemen, members of the Huddersfield Botanical and Naturalist Society, to award prizes for collections of the following *Genera—salix*, or willow; *carex*, or sedges; *rosa*, or rose; *rubus*, or bramble; to be collected within, say—eight or ten miles around Huddersfield; both species and varieties collected to be named, with full particulars of soil and situation.—W. G.

Original Articles.

NOTES UPON SOME EARLY SPRING FLOWERS.

By Leo H. Grindon.

Adoxa moschatellina.—This pretty little plant presents many difficulties to the young student. In our Floras it is classed either with the ivy in the Natural Order *Araliaceæ*, or with the honeysuckles in the Order *Caprifoliaceæ*. To neither of these does it bear the slightest external resemblance, and on minute inspection, the ovary, instead of being decidedly and palpably "inferior," as in the two families mentioned, is found to resemble that of many saxifrages, especially *Chrysosplenium*. That is to say, while the perianth is adherent to the lower portion, the upper is pro-

Digitized by Google

truded above. The entire organ is so minute that it is not easy to make it out. Surmounting it are 4—5 styles which are united at the base; and *seated on the petals* are the 8—10 stamens, disposed in couples. To a Linnæan botanist the plant is almost equally perplexing, the 4 lateral flowers, (which are placed back to back, like the dials of some public clocks, that look as it were to the four points of the compass,) being tetramerous; while the fifth, at the summit, looking up to the zenith, has the parts in fours, except that the calyx is three-lobed.

Ficaria verna, the common pilewort, or "lesser celandine,"—the latter name equally ungrammatical and inappropriate. "Celandine" is an abbreviation of *Chelidonium*, and whatever may have been the plant to which the name was originally applied, as a herald or synchronous companion of the swallow, the English form of the word should be restricted to the genus that bears the Latin one. There is a very considerable difference in the corolla of this lively flower. The petals which vary from eight to nine, are sometimes extremely narrow, sometimes almost as broad and obtuse, in proportion to their size, as those of the *Caltha*. The effect is then very lustrous. Such examples should be selected when it is desired to obtain improved varieties of plants. They illustrate in little, the origin of those more important ones which enrich our gardens and farms. The starch-grains in the tubers are exceedingly minute. To wood-pigeons the latter appear to be palatable and nutritious, since these birds consume them freely.

Fraxinus excelsior, the common ash-tree. The masses of deep black-purple anthers, when ready to burst, and clustered at the extremities of the gray and flattened twigs, resemble ripe blackberries. If a specimen be gathered, and laid on the table in-doors, the anther-cells burst, and discharge their pollen in great abundance; the latter in its dryness and fineness resembles the spores of the *Lycopodium clavatum*, and if collected in sufficient bulk, and scattered in the air would probably ignite in the same way. Many pollens appear to be oleaginous, and it would be interesting to have their inflammable qualities determined. The blackness of the unopened leaf-buds is remarkable and characteristic. When the leaves are fully expanded it is a sign that the time has arrived when greenhouse-plants may be safely placed in the open air: when the leaves fall, (which is generally rather early, and without material change of tint), it is a sign that the time is come when they should be returned to shelter. Indications of seasons, and of the best time for performing operations, both in

Digitized by Google

horticulture and agriculture, are afforded in abundance by the life history of Trees, and we should do well to mark their phenomena more exactly.

Ribes sanguineum.—While the leaves are expanding, and the crimson clusters beginning to open, an excellent opportunity is given by this beautiful bush for noting the nature of perules. The greater portion of the perules that surround a given leaf-bud are pink and bract-like—here and there, however, may be found one with a miniature green lamina at the extremity, precisely corresponding to that which is found on the uppermost bracts of the *Helleborus fœtidus*, and at the extremity of the sepals of the "King Charles" polyanthus. The homology of the vegetative and reproductive organs of plants should be diligently looked after by the young student, since no true idea of them can be obtained except by watching their development, and noting how from one primitive element may be developed, (according to the vital impulse, and to the exigencies of the individual), into perule, leaf, bract, sepal, petal, stamen, or carpel.

Pentas carnea.—The "interpetiolar stipules" of the great Natural Order *Cinchonaceæ*, form one of its most striking characteristics. The *Pentas*, in bloom at this season, gives a remarkably fine example of these organs; they are very large, erect, and deeply laciniated. Many of the flowers, instead of being 5-cleft, are tetramerous, and thus in striking correspondence with the condition found in certain *Galiums*, and more particularly in the *Rubia peregrina*, in which the 4-cleft and 5-cleft corollas are often half and half in number. I have never noted 5-cleft corollas in the *Asperula*, though 4-cleft ones are not uncommon in the *Cinchonaceæ* proper. The combination of the two families respectively illustrated in the plants adverted to, and the denomination of the whole as *Rubiaceæ*, is no doubt proper as a matter of high synthetical Botany. For the student of our native plants, it seems desirous that the herbaceous forms should be kept apart as the *Galiaceæ*, especially as the intermediate leaves of the whorls of the latter are rather difficult to prove to be only "stipules," except to the advanced observer.

Deutzia scabra.—The flowers of this shrub make their appearance in the florists' bouquets at this season, as well as those of the *Deutzia parviflora*, and one or two others. They are easily identified, growing in little racemes, the five petals snow-white, the filaments of the stamens broad and dilated at the summit, and presenting a pair of erect and pointed shoulders, with the anther like a little head, between,—as happens in certain species of *Allium*,—and by the 4—5 long white styles. I refer to this plant on ac-

Digitized by Google

count of the extreme beauty of the ovary when viewed with the microscope. The entire surface is covered with silicious stellate "hairs," resembling those of the leaves, but much more delicate, and in admirable condition from the circumstance of the plant being kept under cover, and thus free from dust.

REVIEW OF THE BRITISH ROSES,

ESPECIALLY THOSE OF THE NORTH OF ENGLAND.

By J. G. Baker, Esq., of Thirsk.

Part I.

In Britain, of late times, comparatively little attention has been paid to our indigenous Roses, and hardly anything has been written about them during the last thirty years. *Rosa* is one of those genera, where a difference in the point of view from which an author looks at the great species question, makes the widest difference in the number of species which he acknowledges. Where M. Grennier enumerates only 23 Roses for the whole of France, M. Dèsèglise describes or mentions 107 in his elaborate monograph of the French Roses, and M. Boreau, in the last edition of his Flora, gives 74 for the Central Departments only. In the present state of the literature of the subject, to write a monograph of the European Roses, to group the combinations of subordinate value into species which well marked characters separate, to trace out the synonymy of these latter, and their distribution through the different countries, to clear up, or cast aside as impossible to be cleared up, the crowd of species which have been imperfectly described, would be a very laborious task. But a large proportion of the species of major, and apparently a larger proportion still, of those of minor value, do not extend their range into Britain; and for us to satisfy ourselves about our indigenous species, and their distribution within the limits of the island, does not seem to be very difficult of attainment, after what has been already done. What I propose to do in this paper is principally to narrate my own experience of the North of England Roses, and their distinctive characters. There is hardly any genus of plants in which there seems to be a greater diversity of opinion, as to what characters are of value for diagnostic purposes: and unless in the handbooks, tho descriptions in these critical genera are

Digitized by Google

unusually full and complete, it is impossible for those who have only books to rely upon to name the species they gather. So that I have considered that to attempt to describe our species, and especially to attempt to ascertain the range of their variations in character, would not be an unprofitable task. I intend as I proceed to deviate from this local limitation to make any comments that suggest themselves, respecting the synonymy, alliances, and distribution of the British species. With regard to synonymy I am under special obligations to M. Dèsèglise, who has not only given me his opinion upon a collection of all the British forms which I was able to send him, but has also furnished me with authentic specimens of most of the species described in his book. And of other continental Botanists I have to thank M. Boreau for authenticated specimens of many of the Roses of his "Flore du Centre," Dr. Fauconnet for examples of many of the Swiss species, and Professor Crepin for Belgian specimens, and copious notes on what I sent him from this country.

Passing the alien *Cinnamoneæ* we come first to the *Spinosissimæ*, all comparatively low bushes, plentifully stoloniferous, with erect or slightly arching stems and short compact branches, typically subglobose fruit, and truly persistent sepals, but best characterised amongst the free-styled roses by the decided inequality of their usually crowded prickles, which pass from their full development down to minute aciculi by gradual stages of transition, and by the, at least occasional occurrence of setæ on the well-matured stems.

I.—R. SPINOSISSIMA. *Linn.* In exposed places an erect shrub, with main stems one to four feet high, and short, rigid, compact, spreading, branches, creeping extensively, and forming a colony where it is allowed to grow unmolested; in shade sometimes with cæspitose arching stems and looser and longer branches. Shoots dènsely beset with prickles, which pass by gradual stages of transition into aciculi and setæ. Largest prickles of the mature stems with bases about three-sixteenths of an inch deep, the prickle upwards of a quarter of an inch long, narrowed suddenly from the base to a slightly compressed needle, the upper line hardly at all curved. Well developed leaves not much over two inches from the base to the apex of the terminal leaflet. Leaflets rigid in texture, roundish or oval, in small specimens not more than one-eighth of an inch long, by less wide; in larger specimens three-quarters of an inch long by half an inch wide, simply serrated or with an occasional accessory tooth, lower serratures

Digitized by Google

tolerably open, occasionally gland-tipped, both sides of the leaf glabrous and glandless, or with a very occasional gland on the midrib beneath. Petioles without hair, but often with a few setæ and aciculi. Stipules with erecto-patent, lanceolate auricles, glabrous on the back, but sometimes slightly gland-ciliated. Peduncles invariably solitary and bractless, erect in fruit, usually glabrous, but sometimes more or less aciculate and setose. Calyx tube sub-globose, glabrous, purple where exposed, segments entire, naked on the back, and either the same at the edge or furnished with a gland or two, from three-eighths to half an inch long, shorter than the petals. Flowers usually nearly white, sometimes more or less tinged with red, measuring from one inch to one and a half across when fully expanded. Styles villose. Fruit coriaceous, shining, glabrous, usually purplish black when ripe, but sometimes reddish, in shape subglobose, or even somewhat depressed, three-eighths to half an inch broad, crowned by the truly persistent somewhat coriaceous purplish sepals, which are hardly if at all lengthened out and flattened at the point. Fruit ripening in September and October.

The only British specimens which I have seen to which the above description does not apply, are—one gathered by Mr. Robertson, in Castle Eden dene, Durham, which has an ovate ampulliform fruit, twice as long as broad, but otherwise as above—and one gathered by Mr. Borrer, at Brighton, which has a very prickly and setose peduncle, and in which the lower part of the fruit is prickly and setose also. This latter is doubtless the variety γ *aculeatissima* of Woods, and the former probably his var, ε.

Our plant is the *pimpinellifollia* of several continental authors, who give *spinosissima* as a distinct species. Reichenbach (Fl. Excurs,) assigns to his *pimpinellifolia* globose fruit, glabrous peduncles, and simply serrated roundish leaves, and to his *spinosissima* ovate fruit, hispid peduncles, and doubly serrated oblong leaves; but this does not give quite a correct idea of either, if Dèsèglise is correct in quoting the latter as a synonym of his *R. Ripartii.* This latter, of which specimens are given in his "Herbariam Rosarum," has roundish oval doubly glanduloso-serrated leaves, the midribs beneath finely glandular, and the stipules gland-ciliated, the peduncles and globose calyx tube varying from glabrous to roughly aciculate and setose. *R. myriacantha, De Can.* is described as having doubly glanduloso-serrated leaves, which are glendular-beneath, and densely aciculate and setose peduncles and fruit. *R. spreta, Dèsèglise* appears to differ from *spinosissima* principally by its fewer prickles and less hairy

Digitized by Google

styles. *R. consimilis, Dèsèg.* has few prickles, glabrous or slightly hairy petioles, almost glabrous leaves, a small glabrous roundish fruit and glabrous styles; and *R. Ozanonii, Dèsèg.* unarmed branches, hairy and glandular petioles, leaves both hairy and glandular on the midrib beneath, glabrous peduncles, and a small spherical fruit with woolly styles. But none of these are known in Britain, and leaving out of view Lindley's *β pilosa*, which seems to be altogether a doubtful plant, there is no need, so far as Britain is concerned, to speak of sub-species here, and no difficulty in finding well-marked distinctive characters to rely upon. It is the only British rose which has the flowers essentially single, and from its nearest allies, the character of its fruit and sepals separate it readily.

R. rubella is represented in Winch's collection at Newcastle, by two specimens in flower, marked "Durham Coast," with ovate, glabrous, simply toothed leaves, slightly setose but not hairy petioles, bracts with spreading setoso-ciliated auricles, peduncles closely aciculate and setose, ovate calyx tube slightly setose at the base, and simple but decidedly leaf pointed sepals, which are glandular over the back, and the largest of which is about as long as the petals. According to the descriptions (British Flora, &c.) it has few prickles, but numerous setæ on the stems, cernuous mature peduncles, short oval drooping fruit, firm in texture and bright red in colour, shortly oval, tapering at each end or somewhat urceolate in shape, and crowned by the persistent sepals. But a plant in Mr. Robertson's collection, marked "This is mentioned by Smith in E. B. as *R. rubella*. On sand of sea shore between Whitburn and Sunderland, Durham, plentifully," is a mere red fruited form of *spinosissima*. In the Transactions of the Tyneside Naturalists' Club, vol. iv. p. 185, Mr. John Hogg, of Norton House, Stockton-on-Tees, gives an account of a rose which he gathered near his own residence, and which was pronounced by Winch to be *R. rubella*, as lately as 1832. Of this he has kindly supplied me with specimens, and it also is evidently a mere form of *spinosissima*, with pinkish flowers, slightly glandular petioles and aciculate and setose peduncles. So that for the North of England we have no authority for the occurrence of the true plant, except the original statement of Winch. *R. rubella* as just described recedes from *R. spinosissima* in the direction of *R. alpina*, approaching the latter closely in the nature of its fruit, and differing conspicuously from the former. There are plants in the Swiss Alps, which come very near to the above characters, which are considered as hybrids between *spinosissima* and *alpina* by M. Reuter, and one of

Digitized by Google

which is the *R. rubella* of Godet. I have specimens of two of these from Dr. Fauconnet, but they are in flower only, and even as far as they go, neither coincides precisely with Winch's plant. Koch refers a specimen sent from England as *R. rubella* to the Istrian *R. gentilis, Sternb.* but describes this latter as having the prickles crowded upon the shoots of the year, and the sepals one half shorter than the corolla.

II. R. Sabini, *Woods.* In exposed places an erect shrub, with stems three to six or eight feet in height, short compact branches, and deep vinous-purple shoots and prickles, creeping extensively and forming a colony: in shade with taller somewhat arching stems and looser branches; the whole plant with a resinous scent and young leaves of the twigs softly downy. Shoots densely beset with prickles, which pass by gradual stages of transition into numerous aciculi and setæ. Longest prickles of the mature stem with bases a quarter of an inch deep, the prickle three-eighths of an inch long, narrowing suddenly from above the base to a slightly compressed needle, the upper line almost straight or slightly curved, the aciculi of the flowering shoots hardly at all curved. Well developed leaves of the barren shoots of the year about three inches from the base to the apex of the terminal leaflet which is cordate or broadly ovate, and measures about one inch long by five-eighths broad. Leaflets more or less thoroughly doubly serrated with open main serratures, dull green and greyish-hairy on their upper surfaces, paler and more hairy beneath, with reddish resinous glands spread sometimes all over the blade, but more frequently almost confined to the midrib and margins. Stipules hairy on the back and usually also glandular, densely setoso-ciliated, with lanceolate erecto-patent auricles. Petioles and peduncles with abundant hairs, aciculi and setæ. Flowers solitary or two or three together, the bracts ovate-lanceolate, hairy and glandular, and copiously setoso-ciliated. Calyx tube subglobose, often purplish, more or less thickly beset with aciculi and setæ, the segments about three-quarters of an inch in length, more or less lengthened out and leafy at the point, usually simple, but not unfrequently furnished with one or two narrow pinnæ, the lower part of the blade always aciculate and setose, the upper part tomentose, and the leafy point often setoso-ciliated. Petals varying from pure white to deep rose colour, in fine specimens not less than one inch in length by an inch in breadth, so that the fully expanded flower is quite two inches across. The calyx segments are often of a rich deep purplish brown by the time the corolla falls, and then spread out at right angles with the

Digitized by Google

tube. Styles villose, fruit not ripening till October, pulpy in texture, deep red in colour, crowned by the connivent or ascending segments of the truly persistent calyx.

This species is tolerably frequent in the North of England. In North Yorkshire we have it in seven out of the nine drainage districts, and ascending from the sea-level to 900 feet. After the examination of a considerable number of authenticated specimens I am entirely at a loss to find characters to distinguish *Sabini*, *Doniana* and *gracilis*, even as varieties. I have not seen the larger prickles more than slightly curved. In small plants the flowers are often single and the sepals all entire, but this is a mere question of want of luxuriance. The flowers vary considerably in size and colour, the peduncles and calyx tubes in the closeness of their aciculi and setæ, the leaves in the openness of the serrations and especially as regards the glandulosity of their underside and the hairiness of their upper surfaces.

Professor Crepin has furnished me with a series of specimens of the Belgian rose, which he describes so carefully in the second fascicle of his "Notes sur quelques plantes rares ou critiques de la Belgique," page 25, under the name of *R. coronata*, and it does not seem to me in any way essentially different from the plant above described. The stems of this he says are about three feet in height and do not arch at the summit, and the flowers are pale rose-coloured. His specimens have the terminal leaflets ovate-elliptical, somewhat narrower in proportion to their length than in our ordinary plant, with sharp moderately open double serratures and usually abundance of glands upon their under surfaces. Comparing our British plant, as illustrated by specimens which I sent, the differences which he indicates (Notes p. 29) are that our plant is more robust, with flowers more frequently more than one, and in consequence with the bracts and stipules of the upper leaves more dilated, the branches and calyces dull violet, the corolla larger and apparently paler. This plant grows in the provinces of Namur and Luxembourg in Belgium and is given in Wirtgens' fasciculi of critical plants, issued in 1858 and 1860.

I have not seen the Savoyard *R. sabauda, Rapin*, but apparently we may also safely refer it here. M. Rapin identifies it as a species with the Belgian *coronata*. M. Crepin states, after the study of authenticated specimens, that it only differs from his plant by its leaves not glandular beneath, and with less compound serrations, less glandular stipules, less prickly calyx tube, and more elongated and leaf-pointed sepals: and he

Digitized by Google

tells us that in the second edition of the "Botanist's Guide to the Canton de Vaud," M. Rapin defines two varieties:—α *R. sabauda, Rapin. Bull. Soc. Hall*, p. 178, leaves glabrescent, simply or almost doubly dentate; and β *R. coronata, Crepin*, leaves grey hairy and velvety doubly dentate. In the second edition of Reuter's Plants of Geneva these two are described as distinct and both localised on Mont Saleve, the former on the summit of the hill, the latter in several places at a lower level.

Mr. Borrer kindly supplied me with specimens of *R. involuta*, and there are others from the Cambridge Botanic Garden labelled by him in Mr. Robertson's collection. Judging the plant by these, and the figures in the English Botany, the most tangible difference from *Sabini* which I can see is in the leaves, which are glabrous or very nearly so on the upper surface, hairy principally on the ribs beneath, glandular principally on the midrib and edges, with some of the teeth simple and some with one or more accessory gland-tipped serrations. The sepals are usually entire but have occasionally, as one of my specimens shews, an accessory pinna, and the calyx tube is very prickly. The smaller size of the bush and flower, the more northern station of the plant may well account for, and in other points it appears to coincide with the description of *Sabini* already given.

The Belgian variety *subnuda*, with which M. Crepin has also kindly furnished me, recedes further from the type, and I cannot possibly do better than transcribe M. Crepin's account of its characteristics as given at page 26 of his "Notes." The leaves are glabrous on the upper surface, thickly covered with glands beneath but with the nerves only slightly pubescent. The petioles are hairy and setose, the peduncles and calyx tubes quite naked, the corolla deep rose coloured and the fruit slightly glaucescent.

The Northumbrian plant that grows on the banks of the Ouse burn in Heaton dene, near Newcastle, which was once called *R. involuta*, by Winch (Geog. Pl. second edition, No. 3, App.) is intermediate between *Sabini* and Smith's *involuta*. In this the leaves are hardly at all hairy above, hairy principally on the midrib beneath, and slightly glandular on the margins, the serratures being sharp, some of them single, but more usually compound. The peduncles are aciculate and setose, but the calyx tube is nearly naked, in hue glaucous and dark purple, so that this must be regarded as a connecting link between the other three forms.

Regarding then *R. Sabini* as best distinguished from *spinosissima* by the nature of its fruit and sepals, and by its more or less hairy and glandular

Digitized by Google

doubly-serrated leaves, from *Wilsoni* and *hibernica* by the latter character, and from *hibernica* also by its glandular sepals, we have subordinate forms as follows, viz.:—

1. *Sabini, Doniana and gracilis, Angl.; coronata, Crepin and Reuter; sabauda, β Rapin;* peduncles and calyx tubes setose and aciculate, leaves with conspicuously compound teeth, hairy on both sides, more or less glandular beneath. Britain from Clova Mountains and Braemar southward to Sussex and Isle of Wight, Belgium, Savoy.

2. *involuta, Smith; sabauda, Reuter; sabauda, α Rapin;* peduncles and calyx tubes setose and aciculate, leaves with less compound teeth, glabrous or nearly so above, hairy principally on the ribs beneath, and not glandular or only slightly so. Scotland, Savoy.

3. *Robertsoni*: *involuta, Winch, Geog. non Smith:* peduncles aciculate and setose, calyx tubes nearly smooth, leaves with less compound teeth, nearly glabrous on the upper surface, hairy principally on the ribs beneath and slightly glandular. Northumberland.

4. *subnuda, Crepin;* peduncles and calyx tubes smooth, leaves with fully compound teeth, glabrous on the upper surface, very glandular all over beneath, but only a little hairy on the veins. Belgium.

Judging from the description *R. Wilsoni* closely resembles *Sabini* in its habit of growth. The stems are said to be about three feet high in the wild state. In the character of the armature of the stem I do not see any difference between them, and the shape and measurement of the prickles seem to be the same. In size the leaves and leaflets are like those of *Sabini*. The terminal leaflet on the leaves of the barren stem is usually typically ovate, but varies from cordate to ovate considerably narrowed below. The leaflets are deep green in colour, often blotched with purple, glabrous on the upper surface or very slightly hairy on the midrib, paler beneath, and somewhat hairy or even glandular on the ribs and petioles, the serrations simple or with only a casual accessory gash, varying from as close as an ordinary *canina* to moderately open. The stipules and bracts are closely setoso-ciliated, the peduncles densely setose and aciculate, the flowers from one to three in number, the calyx tube either entirely naked or slightly aciculate and setose, the segments about half an inch long in the wild plant, glandular on the back, either simple or slightly pinnate, the point lengthened out and slightly dilated, the petals white, but towards the outer edge deeply tinged with rose colour, about five-eighths of an inch broad by three-quarters deep, so that the fully expanded corolla is

Digitized by Google

about an inch and a half across, and the styles are hairy. The fruit appears to ripen as in *Sabini*, but to have more of a tendency to an ovate-urceolate shape. The calyx segments spread out at about right angles from the tube when the petals fall, but afterwards ascend. Mr. Wilson visited the station again last autumn, and has kindly taken considerable pains to show me that the sepals are really persistent. The best character which we have to distinguish it from *Sabini* seems to be in the toothing of the leaves, so that we can scarcely, in my view, regard it safely as a species of primary value.

The figures of *R. Sabini* and *R. Wilsoni* in English Botany are both taken from unusually luxuriant specimens, and this has perhaps given rise to some misapprehensions respecting them. M. Crepin for instance, (Notes p. 28) questions whether 2594 be really *Sabini* at all, and not a very robust specimen of a form of *R. mollissima*. I think there can be no question of its being really the true plant, but it is confessedly from a garden-grown bush. Plate 583 for size and general habit shews our common form well, but not the characteristic armature of the stems, and the fruit is from a garden-grown bush of *R. pomifera*.

III.—R. HIBERNICA *Smith*. A stoloniferous shrub, with somewhat arching main stems, 4 to 6 feet in height, and more robust shoots than the preceding. Stems densely beset with prickles, which pass gradually into aciculi, and sometimes furnished also with a few setæ. Largest prickles of the mature stems with bases three-eighths or even half an inch deep, narrowed suddenly to a compressed needle, the prickle three-eighths of an inch long, varying from nearly straight to decidedly falcate, and the prickles and aciculi of the flowering shoots often curved considerably. Well developed leaves of the barren shoot of the year about four inches from their base to the apex of the terminal leaflet, which is broadly ovate and measures an inch and a quarter long by three-quarters or seven-eighths broad. All the leaflets bright green above, paler and somewhat glaucous beneath, and (in the Yorkshire and Cheshire plants) quite without hairs, and with only an occasional seta on the midrib beneath and the petioles, the serrations as sharp and close as in the ordinary forms of *canina*, the lower teeth occasionally gland-tipped. Stipules glabrous on the back or very nearly so, and not at all glandular, with lanceolate erecto-patent auricles, rather closely setoso-ciliated, the bracts the same. Peduncles quite naked, solitary, or two or three together, and on vigorous shoots, as in all the rest, except the essentially solitary flowered species, there may be as many

Digitized by Google

as a dozen in a cluster. Calyx tube quite glabrous, sub-globose or tending towards ovate, the segments about three-quarters of an inch in length, conspicuously leaf-pointed and more usually pinnate than simple, quite glabrous on the back, but with an occasional gland on the edges. Styles hairy. Petals pale pink, the expanded corolla measuring not more than an inch and a half across. Sepals spreading at right angles from the tube or even somewhat reflexed after the petals fall, afterwards ascending. Fruit ripe in October, globoso-urceolate, deep red and pulpy, measuring about half an inch each way, crowned by the persistent ascending or spreading sepals. This has been met with by Mr. Borrer and Professor Oliver in the vale of Lorton, in Cumberland; by Professor Oliver at Witton-on-the-Wear, in Durham; by Mr. Webb in hedges near Great Meols, in Cheshire; and by Mr. Mudd and myself in hedges at Newton and in Airy-holme Wood, in Cleveland, in North Yorkshire. In Mr. Watson's herbarium there are two specimens from Surrey, labelled "Roadside at Combe Wood, on the left hand side near the top of the hill, coming from the Robin Hood, towards Kingston: only one bush actually seen and that I took away * * Mr. R. Castle," and there are as confirmation of this several small specimens of what is evidently the same amongst some roses dried by Mr. Watson, from Mr. Castle's garden. The Yorkshire, Cheshire, and Surrey plants have quite glabrous leaves and petioles, whilst the original Irish rose which was described under this name has hairy petioles, and the midrib and principal veins on the under side of the leaf are somewhat hairy also. Unless it be that in the latter the sepals are a little more setose at the edge, I do not detect any other difference. The Cumberland plant is slightly hairy; the Durham one I have not seen.

The plant found by Professor Oliver, in Northumberland, in the dale of the Coquet, which is placed doubtfully under this species in Babington's Manual, presents some striking points of divergence from the type, in the direction of *R. Sabini*. The prickles of the main stem are more slender, and the large ones hardly at all curved. The peduncle instead of being glabrous is rather closely aciculate and setose up to the top. The leaves in shape recal those of *Sabini*, the leaflets of the barren shoots being much rounded, often quite cordate at the base, and the serratures more open and blunt than in the type. The petioles are slightly hairy and setose, and the leaves very slightly hairy beneath.

Digitized by Google

Here then the range of variation is as follows :—

1. *eu-hibernica*, peduncles naked, petioles hairy, leaves hairy beneath.
2. *glabra*, peduncles naked, petioles and leaves hairless.
3. *cordifolia*, peduncles aciculate and setose, leaves broader and more bluntly toothed, almost hairless.

Closely allied as they are in many respects, if *R. Sabini* by the clothing, toothing, and odour of its leaves recalls the *Villosæ*, *R. hibernica*, in a similar manner, reminds us of *canina*. The French *R. Biturigensis*, *Boreau*, is quite intermediate between this group and *R. rubiginosa*. It has as numerous and as unequal prickles as *R. Sabini* in combination with leaves glabrous above and hardly hairy beneath, but densely covered with viscid glands, and the French *R. Schultzii*, *Ripart*, classed by Dèsèglise amongst the *Caninæ*, comes very near our *R. hibernica, var. glabra*.

Observations.

Frogs, Toads, &c.—Now that we are fairly in the middle of the breeding season of these animals, when every one's attention is forcibly drawn to them by their loud and well sustained love songs, it will not perhaps be deemed superfluous or uninteresting to give a few notes respecting them.

The frog and toad are, as every one knows, oviparous. They generally commence to deposit their eggs or spawn about the end of March. Last year I saw spawn, *left by the frogs*, on the 6th March; some of this I secured for my aquarium. This year I saw the frogs, for the first time, *depositing* their eggs on the 26th March.

There is a great difference between the forms in which the spawn of the frog and toad is extruded. The spawn of the frog consists of an immense number of eggs, each enclosed in a separate globular coat of mucus; these being again united form a somewhat spherical body of the average diameter of four and a half inches. These germs are not fertilized while within the body of the parent, but at the moment of extrusion. The number of germs contained in one of these masses is enormous. Let us endeavour to ascertain *approximately* what this number will be. I have found by measurement that the average diameter of these clusters is four and a half inches. I find also that the number of eggs per linear inch is three; this gives 27 germs to the cubic inch, and 1,288 in an average sized mass.

Digitized by Google

The toad it would appear is equally, or even more prolific than the frog, in the Intellectual Observer, vol. iv. p. 123, Mr. J. Couch says that he took the trouble on one occasion to draw out and measure one of the masses recently deposited by the Natter-Jack, a species of toad. He found that it was at least one hundred feet long. He further stated that the eggs were in two rows within a cylindrical string of mucus. He does not state how many eggs were contained in one linear inch; but it is highly probable that they would be about the same distance apart as are those of the common toad, which I find to be eight in one linear inch; if this should be the case, we should thus have 19,000 germs, speaking in round numbers, in one mass.

As may be gathered from the preceeding paragraph the spawn of the toad is not, like that of the frog, deposited in globular masses, but in long cylindrical strings of mucus. These strings in the common toad contain a single row of eggs arranged down their centre. The strings are about two lines in diameter, the eggs about one line. After extrusion they generally assume a spherical appearance.

I have not so far been able to follow Mr. Couch's plan of actually measuring one of these strings; but I have made a calculation which gives me very nearly the same result, when we consider that there are two rows in the spawn of the Natter-Jack while in the common toad there is only one. I have taken four inches as the average diameter of these masses. Now as there are eight eggs in one linear inch, and six strings laid side by side fill the same space, we shall have for one cubic inch 288 germs, and in a globular mass of four inches diameter 9,650, or rather more than half the number obtained from Mr. Couch's measurement in the case of the Natter-Jack.

The newts do not seem to be nearly so prolific as the frog or toad; but their habit of depositing only one egg at a time, and that upon a submerged leaf which is afterwards carefully folded round the egg renders observation on this point much more difficult. I have kept them in confinement in my aquarium and have seen as many as a dozen; but, I think, never more from one female newt. Perhaps others may have obtained different results.

In their development from the larval to the adult form, the hind legs of the frog and toad first make their appearance and afterwards the front pair; while in the tritons or newts it is exactly the reverse, the anterior pair appearing first and afterwards the posterior.—J. Hepworth, Lofthouse, Wakefield.

Digitized by Google

Since writing the above I have glanced over Mr. Couch's paper on the Natter-Jack; I find that the eggs though in *two* rows were arranged *alternately*, and consequently it is more than probable that there would be only eight to the linear inch. This would reduce the number to 9,600, or nearly the same as I make for the common toad.—J.H.

Red Grouse.—I have to record the first appearance of this bird in Essex. A fine specimen having been shot at Little Tey, by Mr. William Patten, and which is now in the possession of Mr. H. Rose, of Coggeshall, for preservation.—C. DENNY, Kelvedon.

Merlin (Falco æsalon).—A fine specimen of the above bird was recently shot in this neighbourhood, and is also in the possession of Mr. H. Rose, of Coggeshall, for preservation.—C. DENNY, Kelvedon.

Occurrence of the Tufted Duck, at Halifax.—I have just heard that a pair of the Tufted Ducks (*Anas fuligula*) were shot in this neighbourhood, about ten days ago.—J. GIBSON, Washer Lane, Halifax, April 28th, 1864.

Occurrence of the Dunlin and Pied Flycatcher at Meltham.—On the 27th ult., I saw a pair of Dunlins (*Tringa variabilis*) on the moors above Meltham. I was not previously aware that they bred in this locality. On the 28th ult. I saw perched on an extended bough of alder, growing on the bank of Meltham Mills reservoir, a Pied Flycatcher (*Muscicapa atricapilla*), which is only a very occasional visitant here.—ALFRED BEAUMONT, Greave, near Meltham, May 4th, 1864.

The Rock Dove (Columba livia).—This bird I am very happy to say we have, during the last few days, been enabled to add to the list of those breeding in this neighbourhood, from the fact of having found on the 26th of last month, two nests containing two half-fledged young ones each, in a cluster of rocks about two miles and a half from this town.—J. ASPDIN, Richmond, Yorkshire. May 5th, 1864.

Curious place for a Robin's Nest.—On the 23rd of last month I found a robin's nest built in the bottom of the deserted nest of a magpie, which was placed in a thorn bush, about twenty feet from the ground. It contained five eggs, and the hen bird had just commenced sitting.—J. ASPDIN, Richmond, Yorkshire, May 5th, 1864.

Crymodes templi.—On the 30th ult. I had the good fortune to find at rest, on the bole of a wild cherry, a fine female *C. templi.*—GEO. LIVERSEDGE, Bum Royd, Huddersfield. May 7th, 1864.

Digitized by Google

THE OAK AND ITS GALLS.

Of all our forest trees the Oak seems to offer the greatest attraction to a group of insects, known by the name of Gall-flies *(Cynipes)* and belonging to the order *Hymenoptera*. Root, stem, buds, leaves, leaf-stalks, catkins,—all offer a home and nourishment to one or other species of *Cynips*. In some instances the gall is tenanted by a colony, in others by a solitary individual. The economy is the same in all cases: the parent insect pierces with her ovipositor that part of the tree best adapted to the nourishment and development of her offspring: the sap stagnates, and causes the part to assume those singular growths, some of which must be familiar to all who have gathered oak-branches on the 29th of May. These growths are destined, as I have said, to nourish and protect the infant progeny through the earlier stages of its existence, until it assumes wings and leaves its home.

I have had opportunities of seeing the home and watching the development of several species of *Cynips*, during my long residence in this neighbourhood, and I give the result of my observations for the benefit of your readers. I shall begin with the root. Tuber-like galls, attached by small threads to the main root, are tenanted by a little colony of gall-grubs. I have not yet succeeded in hatching this species, but I hope to do so before the summer. Oak-apples, as they are commonly called, are the nidus of a numerous colony of gall-flies, which find their food and shelter therein in the larva state of existence. These I have repeatedly hatched, as many as twenty or thirty being inhabitants of the same gall. Then we have the round hard galls, round as a marble, on the branches of young oaks. In these single gall-flies pass their earlier existence. The fly somewhat resembles the one that is instrumental in forming the ink-galls on the *Quercus infectoria* of Turkey and the Levant, but is not so large. The gall, too, bears some slight resemblance to the ink-gall of commerce. The gall on the underside of the leaves is of a pulpy nature, and is prettily tinted in the autumn with various shades of red and green. This again is the home of a single *cynips*, which differs in size and colour from that of the hard gall. The leaves of the oak are dotted on the underside with rosy spangles in the autumn that look like parasitic fungi; these prove to be the home of a single *cynips*. As the leaves fall and fade the spangles become covered with a woolly substance, and in the following spring they give birth to a small black *cynips* that really seems disproportionate to its tiny home. I have hatched several of these during

Digitized by Google

the spring of the year. The buds of the oak serve as a home for another species. These are crippled and made to assume the appearance of a little artichoke, and in the centre of the overlapping scales is a small pear-shaped nut, which is tenanted by five or six *larvæ*, each in its own honeycomb-like cell. The last gall-fly I have to mention attacks the catkins of the oak, causing the flower-stalk to be covered with little balls that look like half-ripe red currants. These, when the galls are numerous, have a very pretty appearance.—P. INCHBALD, Storthes Hall, May 2, 1864.

Clostera anachoreta.—This species is now appearing in my breeding cages; the recent warm weather having doubtless accelerated its appearance. It is a very prolific species, and easily bred where its food plant (Dwarf Sallow) can be obtained. A fact which goes far to prove that in a few years time, it will be numbered with our common species.—WILLIAM PORTEUS, Halifax, April 22nd, 1864.

Hybridism—On Wednesday night I observed a male specimen of *Clostera anachoreta* with a female of *C. curtula*—six eggs have been deposited and I trust more will follow. If they are fruitful I will record the result in the "Naturalist."—WM. PORTEUS, 17, Dean-street, Pellon-lane, Halifax. May 6th, 1864.

Notes and Queries.

Ateuchus.—A. L. asks if any of the readers of "The Naturalist" can inform him why the Ateuchus is called the "Sacred Beetle." The following from "Westwood's Classification of Insects," vol. 1, page 206, will perhaps answer his question.

"The type of this family is the renowned Sacred Beetle of the Egyptians, of which so many models, carvings, amulets, &c., are discovered, occasionally of a gigantic size, in sarcophagi, and rolled up in the mummies and other ancient relics of that remarkable people, by whom its appearance, in great numbers, on the sandy margins of the Nile, after the annual rising and falling of the river, together with its extraordinary motions whilst rolling along its little globular balls of dung, were regarded as mystically representing the resurrection of the soul, the motions of the earth and sun, &c. Latreille, who has published a memoir upon these Sacred beetles in the fifth volume of the *Mém. du Muséum*, translated by Benett, in the first volume of the *Zoological Journal*, and in the Appendix to the *Voyage to Meroe* of M. Caillaud, in Sennâri, where their first settlements were established. Mouffet, with his usual cumbrous loquacity, has given a long account of these insects and their supposed virtues. It was also re-

Digitized by Google

garded as the emblem of fertility; and we are informed by Dr. Clarke that it is now eaten by the women of Egypt."—W. H. C.

Preservation of Caterpillars.—In answer to Veritas, p. 7 of "The Naturalist," now to preserve caterpillars or larvæ, I believe the following to be the best and readiest mode:—Immerse them in hot water to kill them, afterwards put them into equal parts of spirits of wine and distilled vinegar a short time, take out and make a puncture at or near the anus, squeeze out the internal parts with the thumb and finger, beginning at the head and running down to the anus, then clean out the interior with blotting paper, say a small roll, afterwards put a small straw into the anus and blow so as to inflate the larva's body to its natural size; having a silk thread, the same colour as the larva, previously tied loosely round the bottom part, withdraw the straw and pull the silk thread at the same time, and tie it fast; afterwards dry them by the fire, or in a slow oven, a short time, and they will retain their natural colour. You may mount them on card with gum tragacanth dissolved in pure spring water.—JOSEPH BLACKBURN, Leeds.

The Sacred Beetle of the Egyptians.—Your correspondent, A. L., wishes to know why the *Ateuchus* is called the Sacred Beetle of the Egyptians. The only answer to this is that it is so called because the *Ateuchus sacer* was regarded as a sacred animal by the ancient inhabitants of Egypt. Other beetles seem to have shared with it in this character, but it is the species most frequently represented in the hieroglyphics, and on the signets and other ornaments found in Egyptian sepulchres. This beetle is also met with embalmed, and it, or its image, was generally placed on those bodies which were prepared according to the most expensive process. It was sacred to the sun, and to Phthah, or the creative power; and was adopted as an emblem of the sun and of the world. A. L. will find further particulars in "Sir J. G. Wilkinson's Manners and Customs of the Ancient Egyptians," second series, vol. 2, p. 255.—W. S. DALLAS, Museum, York, May 9th.

Exchange.

Amphydasis prodromaria.—I have larvæ of this insect, which I should be glad to exchange for anything I have not already bred. Offers, if accepted, will be replied to by return of post.—COLONEL STEWART, Eldon Villa, Redland, Bristol, May 9th, 1864.

Gratis.—I have larvæ of *Clostera anachoreta* and Pupæ of *C. curtula* in duplicate, and shall be glad to send a few to any of my Correspondents

Digitized by Google

who sent postage last season, and did not succeed in obtaining a supply, or to any Entomologist who may require them.—Applicants to pay postage.—WILLIAM PORTEUS, 17, Dean Street, Pellon Lane, Halifax.

Liparis dispar.—The larvæ of this species are appearing in my breeding cage by hundreds. I shall have much pleasure in distributing them to any one sending a suitable box (prepaid), with return postage.—THOMAS MELLOR, Skircoat Green, near Halifax.

Reports of Societies.

Manchester Field Naturalists' Society.—The concluding Soirée for the season of this Society was held in the Library Hall of the Athenæum, Manchester, on Tuesday, April 26th, and was perhaps one of the most brilliant of these usually gay assemblages. The hall was profusely decorated with living plants and flowers disposed on tables, whilst the walls were hung with large coloured drawings of a variety of plants, native and exotic. Amongst the living wild plants from the neighbourhood of Manchester may be mentioned:—*Petasites vulgaris*, in fine flower, *Primula vulgaris* very fine from Penketh and Mobberley, *Luzula pilosa*, *Caltha palustris*, *Oxalis acetosella*, *Polypodium vulgare*, *Hedera helix*, in full ripe fruit. Some beautiful greenhouse exotic plants contributed by several members added greatly to the attractions of the evening; the *Bougainvillia spectabilis*, with its pretty lilac bracts, the beautiful cream-white panicles of *Spiræa japonica*, and the purple racemes of *Wisteria Sinensis* were very striking objects. A specimen of the Japanese *Skimmia japonica* was also on one of the tables, the red berries of which had hung in their rich clusters perfectly fresh since last October. *Deutzia parviflora*, *Dicentra spectabilis*, several species of Rhododendron, Azalea, and Acacia were amongst the specimens shewn. A number of British mosses were sent from the neighbourhood of Kendal, by a lady friend of the society, amongst which were *Dicranum scoparium*, *Polytrichum commune*, *Hypnum plumosum*, *Dicranum majus*, and *Hypnum rugosum*, all in fruit. *H. tamariscinum*, *H. cupressiforme*, *Antitrichia curtipendula* &c. Amongst the scientific instruments, the most interesting perhaps, was the "Natural" Stereoscope, the patented invention of Mr. Joseph Wood, of Huddersfield. Three of these instruments were exhibited by Messrs. Wood, Barker, and Shaw, of the Huddersfield Literary and Scientific Society, and commanded a very large share of attention, from the brilliancy and clearness of the views shewn, and the beautiful atmospheric

Digitized by Google

effects produced. The chair was occupied by Dr. Alcock, and an address was given in the early part of the evening by Mr. R. Holland, on "The Spring Phenomena of Plant Life."

Wakefield Naturalists' Society.—The usual fortnightly meeting of the above society was held on the 5th inst. Specimens of the whole of the flowers in bloom, in this district, were laid on the table. The larvæ of L. monacha, T. cratægi, D. cæruleocephala, and P. populi were exhibited by Mr. Talbot. A large collection of shells beautifully mounted was shewn by Mr. Lunn. Mr. Hebden exhibited several distorted shells which aptly illustrated the readiness with which nature remedies casual injuries. "Nature made Paper" was shewn by Mr. Willis, which he had taken from a pond at Hickleton, near Doncaster; he also exhibited the femur of a rabbit which had been broken and afterwards, in a most curious manner, had grown together again; the muscles of the leg having contracted, drawing the end of the lower part of the femur half an inch beyond that of the upper part, and in this position the sides had grown together, with the sharp jagged ends projecting on each side. Arrangements were made at the beginning of the year for the reading, by the members, of a series of original papers on scientific subjects. An interesting paper was read this evening by Mr. Oxley, on the "Fructification of Flowering Plants."

Correspondence.

To the Editors of the Naturalist.

Gentlemen,—Would you be kind enough to allow me a small space in your Journal, to say a few words to the more enthusiastic Cryptogamic Botanists, in reference to the discovery of mosses new to this neighbourhood. It must be borne in mind that up to the present time, there has been no channel through which these communications could be made by scientific men, either in Botany or any other branch of Natural History.

The desideratum being now supplied, facilities are afforded for the better cultivation of what has hitherto been somewhat neglected. That this is a rich neighbourhood for the Cryptogamic Botanist no one can doubt who has paid any attention to that study, and I trust that in a short time those gentlemen who have devoted much time to this delightful study, will furnish the readers of this Journal with the fruit of their labours, in the form of lists for the benefit of those less acquainted with the subject. I was informed the other day by a botanical friend, that two mosses had lately been found new to this neighbourhood, but on making further enquiries I found

Digitized by Google

them to be two kinds, which in my rambles for the last ten years, I have been in the habit of meeting with yearly in abundance, two miles North-West of Huddersfield. The following are the names :—**Weissia nuda, Tetraphis pellucida,*—another beautiful moss is very common, the *Hookeria lucens*, and I have no doubt before long that the rare *Schistostega pennata* will be found by some enterprising botanist in this neighbourhood. W. GUTHRIE.

Fixby Park, April 22nd, 1864.

[**Discelium nudum.*—EDS.]

THE ENTOMOLOGICAL COLLECTION IN THE BRITISH MUSEUM.

(Continued from page 9.)

Sir,—The correspondent of the "*Times*" has not overstated but understated the facts of the case. Great improvements have been made of late years in the setting of insects by the invention of setting boards or corks, greatly improved Entomological pins, etc., etc., and as such a vast proportion of the specimens have been set abroad with insufficient appliances, and others carelessly extended by dealers or others at home who have had no personal pride in the setting of their captures or their duplicates, it is no exaggeration to say that nearly the whole collection ought to be re-pinned and re-set, so as to have if possible that uniformity and neatness which every Entomologist knows adds so immensely to the beauty and value of a collection.

There are besides an immoderate and inordinate number of duplicates in all the orders, which want weeding out. I know that the difficulty of donation comes in here, but it is a purely personal matter, and should not be allowed for a moment to stand in the way of the improvement of the splendid collection of insects which the nation possesses in the British Museum.

I said that I agreed with every word of the letter of the "*Times*" correspondent, H. C., but in one point I am glad somewhat to differ from him. He spoke of specimens being so incrusted with London dust as to be almost indiscernible. I think little or nothing of this is to be seen, at all events in the cabinet drawers, but possibly he may only have been speaking of the store boxes, and alluding to the insects in them, and if so it may be too true as far as they are concerned, but the remedy in that case is ready in future by the adoption of the reforms I have suggested, the making room at once for all first additions, from time to time, by the elimination of duplicates, and by having paid officers sufficient for their arrangement, without delay or accumulation, in their proper places.—F. O. MORRIS, Nunburnholme Rectory, May 3, 1864.

P.S.—In the previous letter, for "above," in the last line, read "below."

Digitized by Google

Original Articles.

REVIEW OF THE BRITISH ROSES,
ESPECIALLY THOSE OF THE NORTH OF ENGLAND.

By J. G. Baker, Esq., of Thirsk.

Part II.—VILLOSÆ.

Strong bushes with suberect, or somewhat arching stems. Prickles uniform, slender, straight or nearly curved, narrowed suddenly from above the base to a compressed needle. Leaves doubly serrated, more or less hairy all over above, conspicuously hairy and usually more or less furnished with reddish resinous glands beneath. Peduncles aciculate and setose, or very rarely naked. Sepals setose on the back, spreading or connivent, never reflexed upon the fruit, truly persistent or sub-persistent. Styles free, villose.

IV.—R. mollissima. *Willd. Fries.* A tufted shrub, with suberect not arching stems six or seven feet high and stiff spreading branches, which are deep vinous-glaucous in exposure, and with soft grey unfolded upper leaves. Prickles of the well-matured stem uniform or nearly so, the base about a quarter of an inch deep, the lower part slender, the prickle from three-eighths to half an inch long, narrowing gradually to a long needle-like point, the upper line scarcely at all curved, but often declining considerably from a right angle with the axis. Well developed leaves of the shoots of the year from four and a half to five inches from the base to the apex of the terminal leaflet, which is broadly ovate, rounded or even cordate at the base, and measures from an inch and a half to one and three quarters long by fully an inch broad. Leaflets rugose and strongly veined, generally softer and greyer than in any of the other species, glaucous-green, and covered with a thick coating of soft white hairs on the upper surface, paler and still more hairy beneath, usually furnished with a few reddish-brown glands on the under side, the serratures open and furnished with two or three fine gland-tipped teeth, the petioles villose and setose, and furnished with two or three needle-like aciculi. Stipules and bracts hairy and more or less glandular on the back, copiously setoso-ciliated, the former with ovate-lanceolate spreading auricles. Peduncles usually so short that they are hidden by the stipules and bracts. Calyx

Digitized by Google

tube ovate-urceolate or subglobose, purplish and bloomy in exposure, varying from glabrous to densely aciculate and setose, the segments about three-quarters of an inch long, leaf-pointed, entire or only slightly pinnate, densely clothed on the back with setæ and aciculi. Petals almost crimson in bud, usually deep rose-coloured when expanded, beautifully veined with a deeper red, sometimes paler, sometimes pure white, occasionally gland-ciliated along the edge, about as long as the larger sepals, so that the expanded corolla is about an inch and a half across. Styles villose. Sepals erecto-patent or connivent after the sepals fall. Fruit ripening in the North of England early in August, sometimes even changing colour in the latter part of July, more or less typically globose in shape, at first a reddish-orange, finally a bright crimson, in fine specimens measuring five-eights of an inch each way, crowned till it fades by the truly persistent sepals, the stalk sometimes erect but not unfrequently cernuous.

With us but little liable to vary. The principal change is in the clothing of the leaves, which are usually soft and grey, and with very few glands beneath, but sometimes greener, harsher, and more glandular, and the same may be said of the sepals. From *tomentosa* the nature of the fruit furnishes the best character of distinction. Although they flower at the same time, this species ripens its fruit at least a month earlier. By the middle of August its bright crimson globes, often gracefully pendant from the cernuous peduncles, are already a conspicuous object in the hedge rows. They soon grow pulpy in texture, the skin and juice having a pleasant acid flavour, are crowned to the end by the truly persistent connivent and sparingly compound sepals, and deliquesce with the early frosts. As in *tomentosa* both naked and prickly fruited forms are common. The ciliation of the petals, as above described, which is mentioned both by Fries and Dèsèglise as a character of *mollissima* is quite unusual in our plant, and accurs also in undoubted *tomentosa*. In the latter the fruit is typically ovate, but so great is the resemblance between the two in other points, that often, dried specimens in flower are hardly distinguishable.

According to Fries it is universally distributed throughout Scandinavia, and it is the only British rose that reaches Lapland, whilst *tomentosa* is confined to the south west, and in Scandinavia proper is almost restricted to Gothland. Scandinavian specimens from Swartz in Mr. Robertson's collection, and from Hartmann in Mr. Watson's, seem to coincide with our plant, except that Swartz has confused it with *tomentosa*. In the North of England it comes next to *canina* and *tomentosa* in order of frequency

Digitized by Google

and in North Yorkshire reaches 500 yards above the sea level. Mr. Watson's specimens shew a diffusion in Britain from Orkney (J. T. Syme) to the Isle of Wight (A. G. More), but its distribution in the South of England apart from *tomentosa* still wants working out. The same may be said of its distribution in Central Europe. Crepin gives it as a Belgian species,—Reichenbach unites it with *pomifera*,—both Koch and Grenier with *tomentosa*. There are specimens from Frankfort in Mr. Watson's collection. Von Garcke (1863) does not mention it at all for Northern and Central Germany. *R. ciliato-petala* of the 2nd edition of Koch's Synopsis from Tyrol and Carniola is the same plant or closely allied. I have it from two places in Savoy. Boreau gives it as very rare in Central France. Four of Dèsèglise's species, *R. mollissima*, *Grenierii*, *minuta*, and *resinosa*, are very near to our plant. The same may be said of the Styrian *R. resinosa* of Sternberg and Reichenbach. Whether *R. mollissima* of Reuter be the same is doubtful, but his *R. pomifera* apparently includes *R. Grenierii* of Dèsèglise, which is certainly far nearer *mollissima* than the genuine *pomifera*.

A plant which grows in hedges at Woodend near Thirsk may perhaps be worth placing as a variety. It has a taller stem than in the type, more glandular leaves, petioles and bracts, sepals copiously setose on the back, fully an inch long, furnished with leafy points, and three out of the five with long toothed pinnæ, erecto-patent upon the fruit. When in flower this looks more like *tomentosa* than *mollissima*, but in the nature of its fruit and prickles it coincides with the latter. This is referred doubtfully by Dèsèglise to *R. resinosa*, but does not quite agree with the specimens which he sends, which have greener and less hairy leaves, more glandular beneath, and shorter and more glandular sepals.

R. pomifera, *Herm.*, though almost always given as distinct, is in reality very near to *R. mollissima*, with which it coincides in the persistence of its sepals and the early date at which the fruit ripens. Its habit of growth is more robust. The leaves are larger, more lengthened out in proportion to the breadth, attaining two inches or more when fully developed, the upper part somewhat dilated and rhomboidal-obovate in outline, the texture hardly so soft, the serrations more open and many times finely toothed. The sepals are an inch long, two usually simple, and the other three considerably pinnated. The fruit is globular or even depressed, measuring in fine specimens three-quarters of an inch across, and is described as dark purplish-red with a glaucous bloom, the peduncles being

Digitized by Google

cernuous and the calyx tube very prickly. The unripe fruit is figured from a garden specimen at E. B. 583, along with a flowering branch of *R. Sabini*. There are specimens in flower both in Mr. Watson's and Mr. Syme's collections, labelled "Cotes heath, Staffordshire, June 25, 1850, Rev. R. C. Douglas," but it is a rose not very uncommonly grown in gardens and hardly likely to be a native of Britain. According to Fries it is scattered over the East of Norway, Sweden, Gothland and Denmark. According to Crepin it is doubtfully indigenous in Belgium. It is scattered over the North of Germany (Hamburgh, Coblentz, Frankfort, &c.) In France it is not known to occur in the eastern half, and according to Boreau it is doubtful as a plant of the *Centre*, but there are numerous stations in the hilly tracts of the West, in the Pyrenees, and in Savoy and Switzerland. If the use of the Linnean name *villosa* be continued, it is this plant that has the best right to it. (See Fries Novit. Fl. Suce.)

V.—*R.* TOMENTOSA. *Smith.* A tufted shrub with somewhat arching stems, eight to ten feet high, erecto-patent or diffuse branches, which are purplish in exposure, and soft greyish unfolded leaves. Prickles of the well-matured stem uniform, the base about a quarter of an inch deep, the prickles three-eighths to a quarter of an inch long, considerably less robust at the lower part than in *R. canina*, but often more so than in the preceding, varying in shape from straight to falcate. Well developed leaves of the barren stem measuring from four and a half to five inches from the base to the apex of the terminal leaflet, which is ovate or elliptical, rounded or even cordate at the base, and measures from an inch and a half to one and three-quarters long, by from one inch to one and a quarter broad. Leaflets grey-green or full green, and more or less thickly covered all over with hairs on the upper surface, paler and more hairy beneath, varying from almost or quite glandless to thickly glandular all over the blade, the serratures open and furnished with two or three fine gland-tipped teeth, the petioles villose, more or less glandular and furnished with two or three setaceous or slightly hooked aciculi. Stipules and bracts more or less densely hairy and glandular on the back, copiously setoso-ciliated. Peduncles longer than in the preceding, more or less densely aciculate and setose. Calyx tube ovate-urceolate or subglobose, aciculate and setose or naked, the segments from three-quarters to an inch long, leaf-pointed and often more or less pinnate, the more luxuriant ones copiously so, all densely coated on the back with setæ and aciculi. Petals normally of a bright clear rose-colour, sometimes white, occasionally ciliated along the

Digitized by Google

outer edge with a row of glands, just shorter than the largest sepals, so that the expanded corolla measures about an inch and three-quarters across. Styles hairy. Sepals erecto-patent after the petals fall. Fruit ripening in the North of England through September, varying from ovate-urceolate to subglobose in shape, measuring from five-eighths to an inch long and from half to three-quarters of an inch broad, finally bright crimson, the sepals usually adhering till it changes colour, but falling as it ripens, only accidentally lasting through the winter.

Here the prickles vary much in shape and robustness, the leaves in hairiness and especially in glandulosity, and the calyx tube and fruit in shape. On the whole it appears much more likely to be confused with the preceding, from which, as already explained, the nature of the fruit best distinguishes it. After the examination of several authenticated specimens, I do not see how *R. Sherardi* or *subglobosa* and *scabriuscula* are to be characterised even as varieties. Subglobose fruit does not always go with falcate prickles, and in the plants which combine the two there is no uniformity in the coating of the leaves. *R. scabriuscula, Winch*, is not exactly the same as *R. scabriuscula, Smith*. (See Eng. Flora.) Of the French species I do not see how *R. cuspidata, subglobosa, tomentosa*, and *Andrzeiouskii* are to be separated. Our common North of England plant agrees best with M. Dèsèglise's description of *cuspidata* and to this he refers many of the specimens of a range of forms which I sent. A Yorkshire plant which M Dèsèglise refers to *Andrzeiouskii* has sepals which fall as the fruit ripens,* and in other respects I cannot distinguish it from that just referred to. I am not sure that I have seen anything in England which exactly corresponds with the French *tomentosa*, which has ovate-urceolate fruit in combination with glandless leaves. Devonshire specimens from Mr. Briggs agree well with the French *subglobosa*, which has glandless leaves and subglobose fruit, but hardly hooked prickles like Smith's

* Perhaps I ought to explain in what sense I am using the terms which refer to the duration of the sepals. By *deciduous* sepals, I understand those which fall,—casual exceptions excepted,—before the fruit changes colour; by *subpersistent* sepals I understand those which mostly adhere till the fruit changes colour, but fall,—casual exceptions excepted,—as it ripens; and by *persistent* sepals only those which endure till the fruit itself gives way. It seems to me that the important distinction is between the latter and the two others, but M. Dèsèglise appears to characterise the sepals as persistent in all the species where they last till the fruit ripens. So far as I know in the British species it is only to *R. mollissima* and the *Spinosissimæ* that the *persistent* really applies.

Digitized by Google

plant. Mr. Borrer's specimens of Smith's original Tunbridge Wells *subglobosa* have slightly glandular leaves and stipules and the calyx segments more roughly coated on the back with aciculi and setæ than in any other form I have seen. The name *subglobosa* is applied in Switzerland to a plant which is considered as distinct from *tomentosa* by M. Reuter but according to specimens from Dr. Fauconnet, this is identical with the French *subglobosa*, not with Smith's plant. *R. tomentosa* γ of Woods and Borrer, of which there is an original specimen amongst Mr. Robertson's Roses, seems to me to belong to the *Caninæ*, under which it will be noticed.

I have not seen this species from further north in Britain than Aberdeenshire. In the North of England it is the commonest rose except *canina*, and like the preceding ascends to 500 yards above the sea level. I should suppose it to be much more plentiful in the South of England than the preceding, and have specimens now before me from Devonshire, Sussex, and Kent. Its restricted distribution in Scandinavia has already been pointed out, but throughout all the rest of the adjacent parts of the continent it seems to be universally diffused.

A plant from the neighbourhood of Bradford, in West Yorkshire, contributed to Mr. Watson's collection by the late Mr. Hailstone comes near *R. farinosa, Rau.* It has slender prickles, hardly at all curved, leaves thinly hairy on both sides, very slightly glandular on the midrib beneath, hairy petioles with but few setæ, quite naked subglobose calyx tube, naked or very slightly setose peduncles, sepals almost all quite simple, with a lengthened leafy point, some with a broad tomentose margin and very slightly glandular on the back, but others green to the edge and very thinly coated with setæ.

NOTES UPON RARE AND INTERESTING PLANTS.

By Leo H. Grindon.

I have just returned from a three days' visit to North Lancashire and the Lake District, whither a party of eight made their way, last week, for the purpose of botanizing. The afternoon of Thursday, May 19th, was spent at Silverdale. Here grows the fly-orchis, *Ophrys muscifera, Sesleria cærulea, Arenaria verna,* and many other plants not ordinarily met with.

Digitized by Google

In a wood between the Station and Gelland, *Paris quadrifolia* is extemely abundant.

Our walk on the Friday morning was in the neighbourhood of Humphrey-head, and afterwards to the summit. The slope towards the open sea is completely covered with *Helianthemum canum*. The flowers are much smaller than those of *H. vulgare;* the colour is a full and uniform yellow; the leaves are destitute of stipules, and very downy on the under-surface; and the style and stigma appear as if crushed downwards instead of being straight and erect. Associated with it, (but more plentifully upon rocks about a mile nearer Kent's Bank) grows the beautiful *Hippocrepis comosa*. The inflorescence of this plant, along with that of many *Coronillas* and the *Lotus major*, is usually called a "depressed umbel." If a new term be admissible in Botany, I beg to recommend the name "chaplet" as more appropriate; the golden ring of blossoms seems to me always to suggest the idea of a diadem. On the Head grows *Polygala vulgaris*, in five or six different varieties of colour ranging from cream-white, through pink and lavender, into the deepest violet-blue. The beauty of this little flower lies in two of the sepals, which are greatly enlarged, and simulate petals; eventually they become green, and clasp the flattened ovary. Such deviations from usual structure should be attentively considered by the young student, and wherever possible, the parallel cases among exotic plants. In the genus *Mussænda*, for instance, belonging to the Cinchonaceæ, and common in hot-houses, one of the five sepals is similarly enlarged, becoming white and petal-like. Many flowers grow together in a cluster, but only the outer ones have a sepal thus changed and enlarged, so that the general appearance approaches that called "radiant" as in the *Hydrangea*, and the *Viburnum Opulus* in its wild state. *Geranium sanguineum* grows upon the Head, but rather sparingly. The rocky beech below is plentifully strewed with *Armeria*, *Silene maritima*, and other plants that love the scent of the sea, and where muddy there is plenty of *Glaux maritima*. Every one who has a microscope should examine the flowers of the *Armeria* in every detail. The plaited calyx with its long green sepals, connected by a transparent web into a vase fit for the hand of Titania; the five long and tender styles, and the extremely curious interior of the ovary, and its solitary and suspended ovule, are all objects of the highest beauty and attractiveness. Moving through the fields towards Cartmel, we noticed in every hedge the elegant foliage of the *Tamus*. This beautiful plant looks like a pro-

Digitized by Google

duction of the Tropics rather than of the chilly North. It lies, in truth, far away from all its congeners,—the *Dioscoreaceæ*, of which it is the sole representative in Britain, being pre-eminently a family of the hotter regions of the world. No phenomena in botanical geography are more pleasing than those observable in this throwing out, as it were, of outposts. We are tempted by the sight of them, to ask in what direction are the head-quarters, how far they are distant, and what may be the aspect of the forms thus faintly announced. Like many other unisexual plants, the *Tamus* shews in its male flowers, the rudiment of an ovary. For the microscope, it supplies extremely beautiful compound spiral-vessels, resembling those of the *Musaceæ*. On a hot day, in high summer, the very sight of it is refreshing, since the foliage is generally disposed in such a way as to seem, in its green gloss, a fountain of water turned to leaves.

On the Saturday we made our way from Ambleside through Kirkstone Pass, to Patterdale and the borders of Ulleswater. The swampy ground upon the left, soon after ascending the first hill, is decked at this time of year with the lively and verbena-like flowers of the bird's eye Primula, (*P. farinosa*). They were in perfection on the sunny forenoon of this opulent day, as were the blossoms of the *Pinguicula*, so like a little *Gloxinia*. The two stamens of the latter plant are placed in close contact with the round green ovary, one standing upon each side, like the "supporters" on the armorial bearings of a nobleman; the stigma is nearly sessile, blue, and petaloid, like that of many Iridaceous plants: the hairs on the palate of the corolla are formed, at the base of two or three cylindrical tubes, and on the upper part of a succession of circular and flattened cells, shaped like cheeses. Under the microscope the appearance is exceedingly rich and curious. The instrument I use when in the fields or among the mountains, is one formed like a pocket-telescope, with an extra tube, capable of being drawn out when higher powers are desired. The advantages of this construction of instrument are very great. Instead of placing the object to be viewed on a stage, and adjusting the light to it with a mirror, it is merely necessary to place the object between two slips of glass, (the lower one provided with a shallow cavity to prevent crushing), then fix the slips below the steel springs at the end, and hold the instrument up to the sky, as if it were actually a telescope, and we were looking at a star. The amount of light thus procurable is the largest possible, and can be regulated and changed at pleasure, and to suit the object; the object itself is immovable, so that the microscope can be handed round,

Digitized by Google

passing from one to another as we walk; or it can be used while riding in a carriage, or sailing in a boat.

Ulleswater is a lovely spot. The steep hills on the right hand, as we ascend the lake, are covered with juniper-bushes, at the end of May in full flower; the débris further up the mountain sides is an abiding-place for the alpine lady's mantle, (*Alchemilla alpina*) with its lining of satin; and at every step we see great forests of the *Lycopodium*, or stag's horn moss. The plant itself creeps upon the surface, anchored every here and there by a strong and wire-like root, as if it were pegged down; the erect portions, that make these strange but pretty white forests, are the young seed capsules and their vertical stalks. *L. Selago* is also plentiful here; and, as everywhere in Kirkstone Pass, the green parsley-fern, *Cryptogramme crispa*. The contrast of the rich pure colour of the fern with the grey of the ancient rocks is at this season most striking. Nature, in these grand solitudes that have never felt the plough, presents combinations that are not only novel, but in the highest degree pleasing to the accomplished mind. No man of taste has "completed his education," nay, he has no more than entered the vestibule, until he has lived awhile in such scenes as these, leaving his companions, and standing face to face with their sublimity. It may be worth noting that in the most retired and romantic spots, was still and everywhere heard, on this memorable 21st May, the cheerful voice of the cuckoo.

SERIOUS LOSS OF BOTANICAL SPECIMENS BY FIRE.

To our Readers.

We are sure of the hearty sympathy of our readers in calling their attention to the almost irreparable loss recently sustained by our zealous friend and contributor, Mr. J. G. Baker, of Thirsk, author of the "Review of British Roses," now passing through our pages. On Monday night, the 9th inst., Mr. Baker's residence and place of business were completely burned to the ground, the whole of his botanical library and herbarium being utterly destroyed; Mr. Baker himself and family narrowly escaping

Digitized by Google

with their lives. In addition to the business stock, (which is only partially covered by insurance) we have to deplore the loss of several valuable herbaria, &c., as under :—

With the exception of the Lichens and Hepaticæ, which were lent out, the whole of Mr. Baker's herbarium, containing upwards of 100 fasciculi of British flowering plants, of 50 species each, including all the specimens preserved as authentications of names and stations published in his work on North Yorkshire, the result of 18 years labour.

Some 3000 species of European flowering plants.

About 2000 species of American flowering plants and ferns.

A large collection of mosses, British and Foreign, (some few of which were afterwards dug out of the ruins).

The M.SS. of a work on the Flora of Northumberland and Durham, and two good collections of plants, on loan, for the completion of the work, belonging to the late Mr. W. Backhouse, of Darlington, and the late Mr. Storey, of Newcastle. Mr. H. C. Watson's valuable collection of Roses, British and Foreign, so often referred to in the "Review." Mr. Baker's own collection of European Roses, which was almost without equal in the kingdom.

The whole of the "Thirsk Exchange Club" stock of duplicates, including many thousands of rare and critical British plants, together with their very valuable library of books of reference, &c.

Fortunately the M.S. of the "Roses" is safe, being in our possession, but the collection on which it is grounded is completely destroyed. Such a collection of plants can scarcely be replaced, but we appeal to our botanical readers and friends, throughout the kingdom, to aid us in endeavouring to furnish Mr. Baker with the nucleus of a fresh herbarium. We have already had about 500 or 600 species promised by a botanical friend, and shall be glad to take charge of any duplicates, that our friends can spare, until such time as Mr. Baker can find opportunity for receiving them. Parcels may be addressed to the Editors of the "Naturalist," care of Messrs. Wheatley and Co., Huddersfield. Considering how much Mr. Baker has done for the Botanists of England, we are sure this appeal will not be made in vain.

Digitized by Google

Reports of Societies.

West-Riding Consolidated Naturalists' Society.—The quarterly meeting of this Society was held on the 7th of May at Huddersfield, about 100 members being present from the Consolidated Societies of Huddersfield, Halifax, Wakefield, Heckmondwike, Leeds, and Norland. The principal objects of the meeting were the exhibition and exchange of Natural History specimens of all kinds, though at present the attention of the members seems to be nearly confined to Entomology, Botany and Conchology. The tables were loaded with plants, chiefly collected in the neighbourhood of Huddersfield, and some good cases of Lepidoptera and Coleoptera were exhibited. Among the more noticeable species were; Insects,—*Selenia lunaria, Arctia fuliginosa, Orgya fascellina* (larva), *Papilio machaon* (pupa); *Haliplus liveatocollis, Latridius transversus, &c.* Plants,—*Ranunculus hederaceus, R. auricomus, Trollius, europæus* (Holmfirth), *Actæa spicata, Berberis vulgaris* (Brighouse), *Genista anglica, Convallaria majalis, Equisetum hyemale,* and *Adoxa moschatellina* (Clayton West).

Southport Naturalists' Club.—The members of the above Club held their monthly meeting on Friday evening, the 20th May, at the Exchange-rooms, W. H. Talbot, Esq., J.P., president, in the chair. This being the annual meeting the Hon. Sec. presented a statement of the accounts and a review of the work of the past year; the financial affairs were satisfactory, shewing a balance in favour of the club; he was glad to say the book of transactions exhibited a very gratifying result of the year's proceedings; the members had read eight original papers on Natural History subjects, several of them containing valuable additions to the knowledge of the subjects treated upon; the members have also by their research added considerably to the known Natural History of the district. The number of new specimens added in each class are as follows —Zoology: Mammalia, 1; Aves, 4; Reptilia, 1; Mollusca, 23; Crustacea, 9; Radiata, 2; Arachnida, 2; Annelida, 21; Foraminifera, 25; Botany: Crptogamia, 3. The meetings generally have been of an interesting character, and there has been a good average attendance of members. The officers of the past year were unanimously re-elected, viz.:—W. H. Talbot, Esq., J.P., President; J. A. Robinson, Esq., Vice-President; Mr. C. H. Brown, Hon. Sec.

Birmingham Naturalists' Union.—On May 4th, a number of Entomological and Botanical specimens were exhibited by various members, the greater portion having been met with in the course of their rambles,

Digitized by Google

upon the previous field day, in the neighbourhood of Solihull, Earl's Wood, and Moseley. At the same meeting an interesting paper was read by the president (Mr. A. Franklin), on "Feathers,—their adaptations," noticing them as a means of flight—for clothing and ornament to birds, and calling attention to their minute construction. In elucidating the subject, specimens of *Cygnus olor, Machetes pugnax, Dafila caudacuta, Cuculus canorus*, &c., were exhibited.

May 18th.—Mr. Bettridge read an interesting paper upon the "Landrail," illustrated by a specimen of the bird and its egg. In the course of his paper the writer referred to the anatomical construction of the bird, and its nicely adapted form for running. At this meeting several interesting Silurian fossils were exhibited, collected in the vicinity of Great Bare. Among others were specimens of *Astrea*, or Star coral, portions of crinoidal stems, and shells of the genera *Lingula, Orthis, Murchisonia*, &c. In Ornithology there were laid upon the table specimens of various kinds of Petrels from the vicinity of the Cape. In Entomology several species of Lepidoptera and Coleoptera, collected the previous day at Sutton Coldfield, a locality well known to Entomologists generally through the country, were exhibited.

Observations.

Additions to the Zoological Society's Collections.—Some of your readers will be glad to hear that the Earl of Seafield presented to the Zoological Gardens, in the Regent's Park, a very fine specimen of the Wild Cat (*Felis catus, Linn.*) which had recently been captured on his Inverness Estate. Many persons are of opinion that the species had become extinct in the British Islands. The Society have also added a very fine pair of Orang-Utans (*Simia satyrus, Linn.*) from Borneo to their already magnificent collection of animals.—Louis Fraser, the Green, Knightsbridge. S.W., May 9, 1864.

Notes on Ornithology.

Norfolk.

Kestrel (*Falco tinnunculus.*)—A very nice variety of this hawk was obtained on the afternoon of the 12th inst., at Brooke, a village, a few miles from Norwich. The back and upper surface of its wings are of a light buff colour, marked with blotches of darker tint; throat white; head, neck, breast, belly and under surface of the wings of a light ash grey, marked with very light brown streaks and blotches; beak, legs, &c., being of their usual colours; male bird, and was in good condition when shot.

Digitized by Google

Dotterell (*Charadrius morinellus.*)--An adult female shot at Burgh, near Yarmouth, about the 10th inst.

Turnstone (*Strepsilas interpres.*)—Of this species two male specimens were taken on the 7th inst., at Yarmouth.

Knot (*Tringa Canutus.*)—A pair in good condition, shot at Burgh, near Yarmouth, on the 10th inst.

Greenshank (*Totanus glottis.*)—A female was shot at the above-named place on the 12th inst., in dissecting it a cluster of eggs were found, several of which were as large as hemp seed.

Garganey (*Anas querquedula.*)—A male was shot in this locality, about three weeks since.

Egyptian Goose (*Anser ægyptiacus.*) —A fine adult pair were obtained on the morning of the 7th inst., on Breydon water, Yarmouth.

SUFFOLK.

Redthroated Diver (*Colymbus septentrionalis.*)—About the 5th of this month, a fine adult female specimen of *Colymbus septentrionalis* in full summer plumage was captured near Lowestoft.—THOS. E. GUNN, Norwich, May 14, 1864.

Remarkable attachment of a Song Thrush to the place where it hatched a brood of young.—Early in February a thrush built its nest in some ivy, and hatched its young in March, which were reared in safety. A fortnight later a boy, thinking the nest useless pulled it down, and to his astonishment two eggs fell out; a companion seeing this, attempted to construct a new nest out of the remains of the old one, which was almost destroyed, and placed it in the same position. Not having any thrush's eggs he placed two black bird's eggs in the hastily constructed nest. Being most anxious as to the result he awoke about three o'clock next morning and looked out of his bed-room window, where he had a full view of the nest, and saw the female thrush busily employed in arraying and beautifying the rude substitute; he went to bed again, and at five o'clock to his great joy saw one blue spotted egg; since then she has laid two more eggs, and is now sitting on three, the two blackbird's eggs having been removed.—ALFRED BEAUMONT, Greave, Meltham.

Wryneck.—On the 22nd of May I saw a Wryneck, *Yunx torquilla*, which had been shot at Honley a few days before—ALFRED BEAUMONT, Greave, Meltham, May 24, 1864.

Helix rotundata, var. alba.—On the 16th instant I was collecting mollusks, and was so fortunate as to find a specimen of *Helix rotundata, var. alba, Moquin Tandon*; according to Jeffreys this, though widely distributed, is a rare variety.—W. NELSON, Leeds, May 23rd.

Digitized by Google

THE WILLOWS AND THEIR GALLS.

Before speaking of the willows and the gall-flies that affect them, I would remark that we have in our neighbourhood three or four tolerably common species. They are *Salix caprœa*, *S. fragilis*, *S. fusca*, and *S. alba*. These are all more or less attacked by Dipterous and Hymenopterous gall-insects, and foremost in each group are Cecidomyiæ and Tenthredines. I will begin with our Easter friend, the great round-leaved Willow, or Palm, as it is called in the north. *(S. caprœa.)* In the winter and spring the uppermost shoots not unfrequently terminate in a tuft of withered leaves in the form of a rose. If this be examined more narrowly, the centre will be found to consist of closely fitting bracts, and in the midst of them is a reddish-coloured grub. This is the pupa of a gall-gnat, *(Cecidomyia rosaria)* and in this *once green* tuft it has fed, and here it nestles till it puts on wings in the month of May. Examine the leaves of this same willow, as also of other species, in the late autumn, and you will find them occasionally beset with hollow blisters. Each has been the home of the larva of a saw-fly. *(Tenthredo.)* Here it has fed through the summer, and when it has eaten to the full, it has made its way out of the blister, and bored into the soil below, to await its final transformation.

The Brittle Willow (*S. fragilis*) is subject to the attacks of another gall-gnat that has obtained the name of *Cecidomyia salicis*. The economy of this gnat is totally different from that of the species that frequents the palm. The twig is made to assume the appearance of a long, rounded, woody knot. In this knot a whole colony of larvæ are housed, and find therein food and shelter, till they emerge, and enter on their winged existence. These contorted twigs I have noticed on *Salix fusca* as well as *S. fragilis*. The manner of escape of the gnat would appear to be by means of some acid solvent, with which the pupa is provided. I have repeatedly witnessed the exit from the gall, which is effected with wonderful rapidity.

The last gall to which I would draw attention occurs on *Salix vitellina*. It is the work of a saw-fly. (*Cryptocampus angustus.*) The shoot is grooved by the parent saw-fly, and her eggs deposited therein; the sap stagnates, and a spongy matter is formed over the wound. In this the grubs feed in security, as many as three or four being tenants of the same gall, whence they emerge in April, to perform the same round of existence as their parents. The imago I have hatched this year; and Mr. Smith, of the British Museum, informs me that it is probably the first time that this saw-fly has been

Digitized by Google

noticed in this country, at all events it is new to the Museum list of Hymenoptera.—PETER INCHBALD, Storthes Hall, May 16, 1864.

Stray Rambles.—On 29th April I took my gun and other paraphernalia requisite for the securing of anything to fill up a general bag, and after a thirty-six miles ride and a four miles walk I arrived at my old quarters, the Derby Arms Inn, Witherslack. Leaving my gun at the Inn I started for the rocks to look after cases of *Solenobia triquetrella*, and after much peering and close looking on the Lichen covered rocks I found a few, which as yet have only produced apterous females, however my close examination was rewarded by finding at rest on the same rocks, sheltered from the wind, thirteen specimens of the hitherto rare Tipula, *Lima alpina* of Dale, a beautiful species which was taken first by the worthy veteran Entomologist himself, at Kirkstone, about five years ago; his specimens remained unique, and, of course, disputed as a species until last year, when I took both sexes. It was a source of pride and gratification to Mr. Dale that this "gem" was thus rescued from oblivion, and obtained a permanent place in the list of British Diptera.

April 30th.—I wended my way to my "pug" rocks to look for the pupa of *Eupithecia pulchellata;* whilst turning over the moss on the rocks I looked up, and there was a fine specimen of the moth at rest, I turned round and sent a great stone into an overhanging yew tree, and down came another quivering specimen just emerged. I had not much time to stay there, but found a Ruby Tiger pupa case on the rocks, which has since emerged, and a "pug" pupa by splitting off a piece of rock. After picking up three Lurkers (*Cidaria larentaria*) and a few Micro Spiders, I made off for the turf moss expecting to find some of the hybernated Peroneas and Depressarias on the wing, but the sun did not long shine forth. I laid my gun down among the heather and took *Empis borealis*, another local and rare Dipterous species. A few *Cnephasia lepidana*, a pretty Tortrix, and *Glyphipteryx Haworthella* (a Tinea) was all that I saw during sunshine. My time was working fast on to return, and I still wanted a few summer birds before the train came up to take me away from one of the most romantic and lovely places that a naturalist could wish for.—J. B. HODGKINSON, 31, Christ Church Street, Preston, May 14, 1864.

Lepidoptera.—The following are some of my captures in the neighbourhood of London, this season, up to the 18th of May.

E. cardamines, by no means common, near Coombe Wood.

Digitized by Google

L. camelina, found one sitting on a hazel leaf.

P. lacertinaria, one by beating birch, Coombe Wood.

V. maculata, common, Coombe Wood.

E. porata, beating, Wimbledon Common.

L. petraria, abundant, Wimbledon Common.

H. rupicapraria, by searching hedges at night with a lantern, common.

E. exiguata, one by beating Wimbledon Common.

E. pumilata, two on palings.

C. propugnata, one by beating.

S. certata, two in a garden.

X. lithoriza, on palings.

With other common species.

C. J. Buckmaster, 11, Southfields, Wandsworth.

Notes and Queries.

Ranunculus Ficaria.—Some years ago while taking my accustomed walk in this neighbourhood, I observed by the roadside, a strange form of this early spring flower, in which all the stamens had become converted into petals. This curious, and to me, novel circumstance struck me very forcibly, never before having seen this plant, except in its normal condition. I at once removed it from a state of nature to a state of cultivation, in my own garden; this I did with a view of seeing what shape it might assume in future. I have now watched it carefully for three or four years, and although it has very considerably enlarged its dimensions, it has scrupulously maintained through each successive season the form in which I found it, a profusion of double flowers, but not a single stamen to be seen. Can any reader of "The Naturalist" cast a ray of light on this remarkable phenomenon? I may add that with the single exception of double flowers, there is not the slightest difference between it and the common form and state in which I have heretofore found it.—John Sim, Bridge End, Perth, May, 1864.

Exchange.

I shall be glad to open correspondence with Entomologists (young beginners especially,) and to exchange lists of desiderata and duplicates with them.—R. Merryweather, Town Wall, Hartlepool.

Clostera anachoreta.—The applications for *C. anachoreta and C. curtula* have come in so thick and fast that I shall not be able to supply more. The boxes that are in hand, I will return to the owner the first opportunity.—Wm. Porteus, 17, Dean Street, Pellon Lane, Halifax, May 25th, 1864.

Digitized by Google

Original Articles.

NOTES ON THE AZURE-WINGED MAGPIE *(Pica cyanea)*, &c.

By G. F. Mathews, Esq., R.N., F.L.S.

18th January, 1864.—I started this morning, at half-past four, with two of my messmates for Coina, a small village situated on the south side of the Tagus, across the bay commonly known to English sailors as "Jackass Bay;" and much resorted to by the sporting inhabitants of Lisbon on account of the snipe shooting which is to be obtained there. We wrapped ourselves up warmly in railway rugs and great coats, as the morning was raw and chilly, lit our cigars, and reclining comfortably in the boat, had a pleasant row across, arriving there just at daybreak, the distance being I should say from six to eight miles. It is not my intention, however, to give a long description of the manner of sport we had, but merely to mention the fact that we were by no means displeased at the end of the day at the bag we had made. Having briefly noticed that shortly after landing, a fine male *Lanias excubitor, Lin.* was shot while sitting on the bare branch of a lofty poplar, and likewise a specimen of *Picus major, Lin.* as it ran up the bark of a patriarchal fir tree; I shall at once proceed to the principal object of this paper; which is to record the intense gratification of seeing (although not for the first time, as I observed a small flock near the same place in February, 1863,) in considerable numbers, the graceful and beautiful *Pica cyanea.* No one, except those who have experienced the feeling, can have any idea of the intense pleasure there is in meeting in its native haunts a bird, or any other living creature which one has only read of in books, or seen preserved in museums, and especially such a charming bird as this. The first flock I saw, and which consisted of some two hundred individuals, were flying along the borders of an extensive fir wood, their beautiful azure blue wings and tails, dun coloured backs and breasts, white throats and coal black heads contrasting remarkably with the dark green of the neighbouring trees, and the sun shining brightly at the time made them appear doubly conspicuous and attractive. They were keeping up an incessant chattering as they moved from tree to tree (which indeed had at first called my attention to them, when I was some distance off,) many flying

Digitized by Google

down to the damp rushy fields outside the wood, where they seemed to search for hybernating *Orthoptera*, which the warm sun had brought out in goodly numbers from their winter quarters, and one bird I distinctly saw fly off in great triumph with what could have been no other than an unfortunate specimen of *Gryllotalpa vulgaris*,—which insect by the bye appeared to be tolerably plentiful, as I discovered several under loose bark and tangled grass, at the foot of a large alder tree growing at the side of a dyke close by;—others flitted to the ground in the wood itself, where they hunted diligently for insect food at the roots of the trees and underwood, and others preferring to remain in the thick tops of the trees, busily employed themselves investigating the old cones and the nests of the young larvæ of *C. pityocampa*, which abound in immense profusion, and I believe formed their chief food, but of this I will not be positive. On our approach they became excessively wary and commenced flying away in a great hurry, although not to any considerable distance at a time, all taking the same direction along the edge of the wood, and at once ceased their chattering noise, with the exception of one or two individuals that appeared to be the leaders of the flock, and occasionally uttered notes of alarm, much resembling that of the Common Whitethroat (*Sylvia cinerea, Lin.*), only of course on a much louder scale. I tried in vain to obtain a shot at them, but one of my companions was more fortunate and succeeded in bringing one down; it fell, however, among some high rushes skirting the wood, and for a long time defied all our efforts to discover it, and we were just on the point of giving up the search in despair, when I suddenly stumbled right on it, as it lay nearly buried in some soft moss by the side of a small slimy pool, overhung with thick and tangled sedge. It was a magnificent specimen and beautifully shot, not a spot of blood soiled it, nor was a feather ruffled. I was enraptured with my prize which I carefully placed in the palm of one hand while with the other I smoothed its lovely feathers,—though I must own not without some feeling of regret for the death of such a charming creature,—and pointed out its various attractions to my friends, who however, I am sorry to say, did not seem to appreciate my delight as they ought to have done, but on the contrary were somewhat impatient at being kept so long from following up their legitimate game. I was too much taken up with my little Magpie to pay much attention to what was said, and determined as soon as I had packed it safely in my bag, to follow the flock and try and procure another, particularly as I heard them commence their chattering at no great

Digitized by Google

distance; accordingly leaving my messmates to take care of themselves, I selected a path in the wood along which I walked for some time before again coming in sight of these lively and interesting little fellows, and as they were still very wild I thought the best means of obtaining a shot would be to conceal myself behind some bush, and take the chance of one coming within range; so choosing a spot which seemed to be favourable for my purpose, I sat down and waited patiently. The situation I had appropriated, commanded a pretty good view of the neighbouring valley, which was rather picturesque, the hills on each side being densely clothed with dark green fir trees, with here and there a patch, in the vicinity generally of a dilapidated farm house, consisting of not more than two or three acres broken up and under some sort of cultivation, though looking at this time of the year, as compared with the woods enclosing it, extremely desolate; but in the spring and summer doubtless green with wheat or vines. In the midst of the valley ran a small clear stream, from which during the course of the day, which was intolerably hot, I frequently drank copiously, and can testify to the excellence of the water.

(To be continued.)

Ingleborough Stations for Hutchinsia alpina, *R. Brown*, and Draba rupestris, *R. Brown*.

By Louis C. Miall, Esq.

One of our first critical botanists, and a gentleman whose name is familiar to all students of the Yorkshire Flora, has been lately instrumental in making an interesting discovery. In the end of last year Mr. Carruthers showed the Rev. W. W. Newbould two specimens, labelled "*Lepidium petræum*, Ingleborrow, Mr. Mc. R[itchie]," forming part of a collection bequeathed to Sir J. E. Smith, some sixty years ago, and afterwards in the possession of the Linnæan Society. Judging from the dates affixed to various plants in the collection, it appears to have been made in the latter part of the last century. On examination, these plants prove to be *Hutchinsia* (*Lepidium*, *L.*) *alpina*, *R. Brown*. In a letter communicating the discovery, Mr. Newbould writes:—"The probability of their being native is strengthened by the fact of Inglebro' being almost

Digitized by Google

the only spot in the British Isles where the requisite soil and the requisite elevation for that species are both met with." In a notice written for the "Journal of Botany," (Dec. 1863), Mr. Newbould mentions the circumstances of its supposed occurrence in Britain, and adds :—"It cannot be safe to consider the Yorkshire station an error, when it is remembered that both the calcareous soil and altitude which the plant requires are found in the Ingleborough district, and that its Continental distribution is not opposed to its being found with us ; but it is desirable to have modern confirmation of its occurrence before it can be with certainty called a British plant."

Such confirmation is eminently desirable, and attention to the subject is requested on the part of West Yorkshire botanists. To aid them in the search, Koch's description is appended, with a translation of the same.

HUTCHINSIA ALPINA (R. Brown h. kew. l.-c.) fol. pinnatis, *caule simplici nudo, racemo fructifero elongato laxo,* petalis calyce duplo longioribus, siliculis oblongis utrinque acutis stylo brevi terminatis. ♃. In glareosis humidis et ad rivos alpium solo calcareo ; cum fluviis in planities descendens (dch. d. g. Alpenk.) Apr. Mai. in mont. altioribus Jul. Aug. D. fl. 4. 518. Lepidium alpinum L. sp. 2. 898. Jacq. a. t. 137. St. h. 20. L. Halleri, Crantz a. 1. p. 8. Noccæa alpina Rchb. fl. exc. p. 663.

HUTCHINSIA ALPINA (R. Brown Hortus Kewensis ed. 2. v. 4. p. 82.) Leaves pinnate ; *stem unbranched, leafless ; fruit-bearing raceme elongate, lax ;* petals twice as long as the calyx ; pouches oblong, sharp at each end, terminated by the short style. Perennial. In damp gravelly places and near alpine streams, on calcareous soil ; descending with the rivers into level ground. April and May ; on the higher parts of mountains, July and August. Synonyms and references.

Synopsis Floræ Germanicæ et Helveticæ, Ed. 2. Frankf. 1843.

The unbranched stem and lax raceme distinguish it sufficiently from the two other *Hutchinsias*, especially if the acute tips of the pouch be taken into consideration. The characters of the genus are found in the British Floras.

In the letter above quoted, Mr. Newbould continues :—"Do you know that Sir W. Hooker gathered *Draba rupestris* on Inglebro'? At any rate there is a specimen so labelled by him in the Kew herbarium." Our botanists of the West-Riding should endeavour to ascertain the truth of this enrolment of a rare Highland plant among the natives of Yorkshire.

Digitized by Google

A LIST OF THE MACRO-LEPIDOPTERA WHICH OCCUR IN PERTHSHIRE.

By F. B. W. White, Esq., F.B.S., Ed.

Part I.

The county of Perth, as the readers of the "Naturalist" are probably aware, possesses a certain degree of fame, both to the Entomologist and to the Botanist.

To the former the name of Rannoch will at once awaken thoughts of *Petasia nubeculosa*, and other rare insects which are to be found there only; whilst to the latter the thought of the Breadalbane mountains, where the Alpine Forget-me-not shines with its deep blue corolla, and where *Saxifraga cernua* loves to hide among the wild crags, is enough to make him grasp more firmly the spud, and set forth with greater ardour to the fields and woods.

This rich country, however, possesses no catalogue of its treasures; only incomplete lists are scattered here and there, through various publications.

The following list, though doubtless by no means perfect, will give the readers of "The Naturalist" some idea of what Macro-Lepidoptera are to be found in Perthshire.

RHOPALOCERA.

[*Colias Edusa*.—I once thought I saw a specimen of this near Perth, but as nothing more has been seen of it, I may have been mistaken. I think it is not improbable that Edusa should be found near Perth.]

Pieris brassicæ.

P. rapæ.

P. napi.

Anthocharis cardamines.

[*Leucophasia sinapis*.—This has been recorded as occurring near Perth, but it was certainly a mistake.]

Lasiommata Ægeria, not common near Perth.

L. Megæra.

Hipparchia Semele, abundant in several places (as Kinnoull Hill), round Perth.

H. Janira. I have seen a specimen of this taken near Perth, that had male markings on one side, and female on the other.

H. Hyperanthus.

Erebia Blandina, Pitlochry, Rannoch, etc.

E. Cassiope, Rannoch.

Cœnonympha Davus, Rannoch, etc.

C. Pamphilus.

Cynthia cardui, sometimes abundant, at other times not to be found.

Digitized by Google

Vanessa Atalanta.

V. Io, Bridge of Allan, Perth?

[*V. Antiopa*, Bridge of Allan?]

V. urticæ.

Argynnis Aglaia, not uncommon.

A. Selene.

A. Euphrosyne, rare. I have only seen three specimens.

Melitæa Artemis, local.

Thecla quercus, spins up underground.

T. rubi, local.

Chrysophanus Phlæas, chrysalis on the under surface of a stone.

Polyommatus Alsus, local, but often abundant.

P. Alexis.

P. Ægon, near Pitlochry. Mr. D. P. L. Morison.

P. Artaxerxes, on all the hills near Perth. Some varieties nearly approach *Agestis.*

Reports of Societies.

Birmingham Naturalists' Union.—The summer exhibition of objects of natural history by the Birmingham Naturalists' Union was opened at 125, Suffolk-street, on Wednesday evening, June 1st, and remained open during the three following days free to the public. The Union was formed about two years ago, and it now consists of between thirty and forty members, chiefly young men, who assist each other in the various branches of natural history by means of papers read at the *weekly* meetings, exhibitions of specimens, field-days, of which they have eight every year—the formation of a library for circulation and reference, and the establishment of collections of ornithological, entomological, botanical, geological, and other specimens. The objects exhibited were numerous and valuable, occupying four rooms and consisting of illustrations of the sciences of Zoology, Botany, and Geology, arranged in collections lent by individual members of the Union and others. Among the *Mammalia* were a lion belonging to Mr. Wadhams, who, it is said, intends to present it to the Corporation to be placed in Aston Hall; a tiger; the skull of an elephant shot by Sir Stamford Raffles when he was Govenor of Sumatra; the head of a Spanish bull; specimens of the horns and skulls of the koodoo and buffalo; and two enormous bats from Australia. The *Reptilia* were represented by a *Boa constrictor*, with two young, which were produced in a travelling showman's van in Birmingham. The class *Aves* was largely illustrated both by rare and beautiful Foreign species, and by good collections of British Birds. Among the former were a couple of specimens of the

Digitized by Google

"Bird of Paradise," and underneath them in strong contrast with the gay plumage of its neighbours was a "Sooty Albatross." Collections of birds of beautiful plumage from Australia and India were also much admired. Among the English Birds were a specimen of the Stormy Petrel (*Thalassidroma pelagica*) caught on the canal in the neighbourhood of Birmingham; an Eagle Owl (*Strix bubo*); a pair of the Great Northern Diver (*Colymbus septentrionalis*), &c. This portion of the exhibition was also enriched by a large collection of the nests of British Birds, *in situ*, and shewing the peculiarities of their construction. Collections of *Mollusca* were exhibited by Mr. Cash, of Halifax, as well as by several members of the Union. The Entomological and Botanical collections were numerous and several large aquaria formed centres of attraction in the various rooms. Mr. Lancaster, optician, also lent two powerful microscopes, which added greatly to the interest of the exhibition.

Observations.

Acherontia atropos.—On the 3rd instant I had the pleasure of breeding a fine specimen of this species, from a larva obtained at Darenth last August. The peculiar "squeaking" noise produced by the Imago is very perceptible, but I did not find that either the larva or pupa emitted any sound.—Wm. Cole, Page Villa, Tottenham, June 6th.

Hadena glauca.—On May 2nd, whilst searching the Heather (*Calluna vulgaris*) on Norland Moor, near Halifax, I had the good fortune to meet with a pupa of *Hadena glauca*, from which a female emerged on the 5th. I believe this is the first time it has been taken in this neighbourhood.—Thos. Mellor, Skircoat Green, near Halifax.

Asplenium Adiantum-nigrum.—Some years ago this pretty fern grew somewhat sparingly in Dungeon Wood, near Huddersfield, but we understand some ruthless collector having become acquainted with its habitat, completely exterminated it. We are, however, happy to announce that on Saturday (21st ult.), we found a tuft springing out of the crevice of a rock. Of course we did not take it, but merely plucked a single frond in verification of its occurrence. We shall not, at present reveal the exact locality for fear of another similar eradication taking place.

We may also state that a few tufts of *A. Trichomanes* (which suffered the same fate as *A. Adiantum-nigrum* some years ago), are still to be found in its old locality, in the wood near Woodsome Hall.—Eds. Nat.

Digitized by Google

Notes on a few Buckinghamshire Rarities,—May, 1864.

By James Britten.

At the end of last month I was staying for a few days in the neighbourhood of Little Marlow, Bucks, and as the botany of this locality appears never to have been fully investigated, I venture to offer the following notes of my principal discoveries there to the readers of the 'Naturalist.'

Little Marlow is a picturesque village, situate near the Thames, which in this vicinity quite comes up to the poet's description,

> "Though deep, yet clear;
> Though gentle, yet not dull."

this is certainly more than my London readers can say in its favour by the time that it arrives in their neighbourhood. It may seem rather an anachronism when I state that, although this paper is entitled "Notes on a few Buckinghamshire rarities," the locality to which I would first draw attention is in Berkshire; yet such is the case. In a marshy meadow not very far from Cookham, and by the side of the railway, I was delighted to find a perfect miniature forest of *Pedicularis palustris*. This plant, which, by the way, is one of the handsomest owned by our flora, is generally recorded as common. It appears, from the 'Cybele Britannica,' to be as widely distributed as *P. sylvatica*; and yet, as compared with this latter, it is rare. I myself had never previously met with it, though my botanical rambles had extended over considerable portions of at least six counties, (to say nothing of occasional excursions into many more.) A friend, by whom I was directed to this spot, informed me that she had never before seen it, and this after studying British Botany for at least thirty years. The leaves are dark brown in colour, so dark, indeed, as almost to remind one of the *Perilla Nankinensis* now so fashionable as a foliage border plant. Growing with the *Pedicularis*, and in still greater abundance, was *Stellaria glauca*, which certainly well deserves its specific name. *Saxifraga granulata*, occurred on a neighbouring bank, but was of course in a somewhat advanced state. At the further end of the meadow, on a bank, was a patch of the Star of Bethlehem (*Ornithogalum umbellatam*), its beautiful white starry blossoms expanding fully in the sunshine. This is one of the "unfortunates" branded as "alien" by the inexorable 'Cybele;' how it could possibly have been introduced to this locality, I cannot imagine. It was confined to a very small piece of ground, so I took but a few specimens; and it was fortunate that I did, as on revisiting the spot a few days after, nearly all the blossoms had been wantonly

Digitized by Google

plucked and thrown down to wither on the bank. The bulbs of this plant grow remarkably near to the surface of the ground, and an "exterminator" would find but little difficulty in destroying it entirely, as far as this locality is concerned. Let us hope that such an one will never visit the spot! In the meadow on the other side of the railway, *Valeriana dioica* and *Cardamine amara* grow sparingly; in the drier parts of this, and in most other meadows, *Campanula glomerata* was flowering profusely; its time of blossoming, as usually recorded, is July and August.

To return now into Buckinghamshire, which, in strict conformity to the title of these notes, I ought not to have left. In a walk from Little Marlow to Well End, several good plants were noticed. *Ranunculus parviflorus* covered the bank on one side of the road near the latter place, and was counterbalanced on the other by *Geranium lucidum*. The bright red stems and rosy flowers, in union with the glossy leaves, render this plant, though small, one of no ordinary beauty. Close by was *G. columbinum*, the delicately cut leaves and lilac-purple flowers of which almost rival in loveliness those of *G. lucidum*. I found in a cornfield, near the hedge, two fine specimens of *Hyoscyamus niger*, just opening their delicately veined blossoms; in the evening the plant leans to one side, and the leaves close round the flower-head. Its extremely fetid smell and clammy touch almost counteract the admiration with which one must regard it. In the same field *Thlaspi arvense* was very abundant. I have never seen it in so great profusion elsewhere. Is it quite definitely ascertained that *Lychnis diurna* and *L. vespertina* are not forms of one species? In this neighbourhood the latter is the common plant; indeed, I never noticed *L. diurna* during my stay here: while in some parts of Essex, *L. diurna* abounds, where *L. vespertina* is but rarely seen. The latter is called "Bull-rattle" in this vicinity. In a grassy field just before entering Well End, the common gravel plants were noticed, with *Trifolium subterraneum* and *T. striatum*, both in great abundance. By the roadside close to the village were several fine plants of the Blessed Thistle (*Carduus Marianus*), which were showing well for flower. In returning to Little Marlow, in a cornfield near the new and handsome school, *Myosurus minimus*, out of flower, was very abundant; this I had previously gathered on the Berkshire side of the river. By a curious malformation, the spikes on some of the specimens were forked, and this occurrence was by no means unfrequent. In the same field were *Specularia hybrida* and *Anthemis arvensis*, the former with both purple and white

Digitized by Google

flowers; also *Centaurea cyanus*, and the pretty, but injurious, *Ranunculus arvensis*, which, as I was informed by a farmer, is here called "Starve-acre," and "Devil o' both sides;" the latter curious name having been bestowed on it from the circumstance that the large carpels are spiny and prickly on either side. On a wall opposite Little Marlow church were one or two specimens of *Arenaria tenuifolia*, growing among a perfect crop of *A. serpyllifolia*, *Saxifraga tridactylites*, &c. In a neighbouring ditch, the beautiful Water Violet *(Hottonia palustris)* grew in great abundance; it is frequent in this neighbourhood. *Fedia dentata* occurred plentifully in a cloverfield near Sheepridge; and in the woods *Neottia nidus-avis* and *Cephalanthera grandiflora* are generally met with. My friend had noticed a fine plant of *Anchusa sempervirens* near Great Marlow; it was probably an outcast. I have now enumerated the principal rarities observed during my spring trip into Buckinghamshire; should they be thought of sufficient interest, I may possibly record the fruits of my summer holiday, in the same neighbourhood, in these pages.

Notes and Queries.

Ranunculus Ficaria.—With respect to Mr. Sim's *Query* in our last number respecting a double-flowered specimen of *R. Ficaria*, we beg to refer him to a paper by Dr. Berthold Seemann on "Plants producing double flowers," in the current number of "The Journal of Botany," pp. 177-8. This paper contains a list of 279 species of plants, which have been observed to produce double flowers, and amongst them is the one named by Mr. Sim. Dr. Seemann also remarks that "in wet seasons double *Ranunculi* are by no means uncommon."

Another remark worthy of note is that "The bulk of the plants producing double flowers, is undoubtedly indigenous to the Northern Hemisphere; in Polynesia and the whole of Australasia not a single species with double flowers has turned up; but there are in South Africa and South America, at least a few plants, the stamens of which are converted into petals." *Op. cit.* p. 177.—Eds. Nat.

Ranunculus Ficaria.—In looking over the "Naturalist" for June 1st, I observed a Query on the above plant producing double flowers: this peculiar form is by no means new to this species, as well as others of the genus. We find this plant mentioned in the catalogue of the plants cultivated in the Edinburgh Physical Garden, as far back as the year 1683. At that time it was known by the name of *Chelidonium Minus flore pleno*, Pilewort or lesser Celandine. Since then it has been cultivated in almost

Digitized by Google

every collection of Alpine Plants, its neat habit and showy flowers, and above all its early blooming, have won for it the admiration of all lovers of early spring flowers. I have met with it in my rambles on several occasions with semi-double flowers, and have cultivated the double flowered *var.* for the last twenty years, and, as remarked by Mr. Sim, I have never seen any thing like stamens in the double flowers. A fortnight ago I picked up two other plants with semi-double flowers, viz.: *Ranunculus repens* and *Ranunculus acris*. *R. repens* with one flower open containing six stamens; the others converted into ovate and lanceolate petals. In the flowers of *R. acris* in place of the stamens there sprung from the centre of the flower another peduncle supporting a flower bud. The two plants I removed from the field to the garden, and by this means I shall have an opportunity of observing any change that takes place. The yellow Bachelor's Buttons so often seen in cottage gardens is a sport from the normal condition of *Ranunculus acris*; this also was cultivated in the year 1683 under the name of *Ranunculus Pratensis erectus acris flore pleno;* or double flowered upright meadow crowfoot. At present the plant is known by the name of *Ranunculus acris flore pleno*. I might mention other sports from the normal form in the Ranunculus family, but will leave them for some future occasion.—W. Guthrie, Fixby Park, June 4th, 1864.

Double varieties of Wild Plants.—I have read with interest the remarks of Mr. Sim upon the double variety of *Ranunculus Ficaria* he found. Although I have never seen this species of Crowfoot with double flowers, yet, in May, 1861, at the Northwick Walk Fields, Harrow, I discovered several fine plants of *R. repens* completely double. The flowers retained this peculiarity throughout 1862, when unfortunately in the early part of last year they were destroyed, owing to some alterations which were being made in the field path. Another member of the natural order *Ranunculaceæ*, *Anemone nemorosa*, I found growing with double flowers last month in a wood at Harrow; I send a specimen to the Editors of the "Naturalist" for inspection. The whole plant looks larger and more luxuriant than is ordinary. A large colony of them was growing in the shade; I should consider that extra richness of soil has doubtless produced the monstrosity (if I may be permitted to use the term) in both this and the *R. repens*, and most likely the same has caused the peculiar formation of Mr. Sim's *R. Ficaria*. Again, whilst discussing the peculiar forms of *Ranunculi*, might I enquire if any of your readers have ever seen a form of

Digitized by Google

Ranunculus acris, like one I found last summer at Harrow Weald, Middlesex, growing in a dry ditch there? It had not the smallest vestige of stamens or seed vessels, and the petals were also remarkably small, of a pale yellow hue, and about the size of *R. hederaceus*. The leaves and stalk had no apparent malformation existing in them.—J. C. Melvill, The Grove, Harrow, June, 1864.

Exchange.

I have some fine specimens of *N. lucina*, *T. rubi*, *S. tiliæ*, *S. populi*, *P. statices*, *C. plantaginis* (bred), *L. monacha*, *S. carpini*, *G. trilinea*, and *A. ornata*, which I should be glad to exchange. I wish to replenish my series of many of the common and local species, so that my desiderata will be very numerous.—W. E. Parsons, New Road, Aylesbury, June 7, 1864.

Original Articles.

REVIEW OF THE BRITISH ROSES,
ESPECIALLY THOSE OF THE NORTH OF ENGLAND.

By J. G. Baker, Esq., of Thirsk.

Part III.—RUBIGINOSÆ.

Bushes of various size and habit with suberect or arching stems. Prickles uniform or intermixed with aciculi and a few setæ, the full sized ones falcate or uncinate, with the lower part moderately robust. Leaves doubly serrated, glabrous or slightly hairy above, more or less covered with hairs and viscous often odorous glands beneath. Peduncles aciculate and setose or occasionally naked. Sepals more or less glandular or setose upon the back, spreading upon the fruit, deciduous or subpersistent. Styles free, moderately hairy or glabrous.

VI.—R. rubiginosa. *Linn.* A shrub four or five feet in height, with hardly arching main stem and comparatively short more or less compact branches. Mature stem furnished with numerous large prickles, plentifully intermixed with either setaceous or slightly curved aciculi and sometimes a few setæ, but not passing down into them gradually as in the *Spinosissimæ*. Large prickles with narrowly elliptical bases about a quarter of an inch deep, the prickle from three-eighths to half an inch long, falcate or even uncinate, moderately robust below but the point long and

Digitized by Google

needle-like. Well developed leaves of the barren stem measuring from two inches to two inches and a half from the base to the apex of the terminal leaflet, which varies from broadly ovate or obovate to roundish in shape, and measures from three-quarters to an inch long by from three-eighths to five-eighths broad. Leaflets bright green above, glabrous or very slightly hairy, pale green beneath, hairy only on the midrib and veins, but thickly covered all over with viscid odorous glands, the serratures open and much toothed, each tooth being gland-tipped, and the petioles both setose and hairy, and usually furnished with numerous unequal setaceous aciculi. Stipules with erecto-patent or divergent auricles, copiously glandular but hardly hairy on the back, but the ovate lanceolate bracts nearly or quite glabrous on the back, both densely setoso-ciliated. Peduncles densely aciculate and setose. Calyx tube ovate-urceolate or subglobose, usually naked, but sometimes prickly. Sepals mostly pinnate, the more luxuriant ones with two or three long toothed spreading pinnæ on each side, glandular on the back and with a dilated leafy point, the largest about five-eighths of an inch long. Petals usually of a full rose-colour, sometimes paler, measuring about five-eighths of an inch each way and the fully expanded corolla about an inch and a quarter across. Styles thinly hairy. Sepals spreading out at about a level after the petals fall, afterwards ascending. Fruit measuring about half an inch each way, bright scarlet in colour, typically subglobose or obovate in shape, not ripening till October, by which time most of the sepals have fallen.

In some parts of the North of England this is tolerably plentiful, but it has been cultivated so much and so long, that the stations must often be considered doubtfully indigenous. There are examples in Mr. Watson's collection from as far north as Inverness. Though in Scandinavia this is a more northern species than either *tomentosa* or *spinosissima*, I have not seen it with us at more than 250 yards above the sea level, whilst they both ascend to 500 yards. It is reported from all the adjacent parts of the continent. Of M. Dèsèglise's species our plant agrees best with *R. comosa*, *Ripart*, which is included in his "Herbarium Rosarum." His *R. rubiginosa* has villose styles in combination with an aciculate ovoid calyx tube, and leaves hairy upon the upper surface. His *R. permixta* and *R. septicola* have narrower and more graceful calyces and fruit in combination with glabrous styles and pubescent stipules. Under the former of these he quotes *R. rubiginosa* of Aiton's Hortus Kewensis but I have not seen either of these from Britain.

Digitized by Google

A plant gathered by James Backhouse and myself in Swaledale, North Yorkshire, has several points of difference from that just described, and is referred doubtfully by M. Dèsèglise to *R. sylvicola*, *Dèsèglise* and *Ripart*. The habit of growth is looser. The main prickles are as slender as in the *Villosæ*, and curved but slightly, the petioles being furnished, as in *rubiginosa*, with numerous unequal aciculi. The leaves are larger and but faintly odorous, the terminal one being obovate with a rounded base. The fruit has more of the ovate or elliptical urceolate shape of *micrantha* than that of the typical plant, and is rather prickly, but the sepals are those of *rubiginosa*, the more luxuriant ones being furnished with two or three toothed spreading pinnæ, and the styles are hairy.

VII.—R. MICRANTHA. *Smith*. A tufted shrub six to eight feet in height, with arching stems and ascending flexuose branches. Prickles uniform, uncinate, those of the mature stem with bases about three-eighths of an inch deep, the prickle from a quarter to three-eighths of an inch long, narrowed suddenly above the base, but the lower part moderately robust. Well developed leaves of the barren stem from two and a half to three inches from the base to the apex of the terminal leaflet, which is usually typically ovate, but sometimes obovate or roundish, and measures from an inch to an inch and a quarter long by from three quarters to seven-eighths of an inch broad. Leaflets thinner in texture than in the preceding, bright green and glabrous or very nearly so above, hairy on the principal ribs beneath, thickly scattered over with faintly odorous viscid glands, the serratures open and much toothed, each tooth being gland-tipped, and the petioles both pubescent and setose, and usually furnished with three or four falcate aciculi. Stipules with erecto-patent or divergent auricles, occasionally pubescent, and the lower ones always densely glandular on the back, but the upper ones and the ovate lanceolate bracts usually glabrous on the back, all densely setoso-ciliated. Peduncles densely aciculate and setose. Calyx tube narrowly ovate-urceolate, either naked or slightly prickly at the base. Sepals simple or pinnate, from three-quarters of an inch to an inch long, lengthened out and leafy at the point, but the more luxuriant ones with only one or two small narrow erecto-patent hardly toothed pinnæ on each side, all densely glandular on the back. Petals pale rose-coloured, often not more than half an inch broad and deep, so that the fully expanded corolla is scarcely more than an inch across. Styles glabrous or very nearly so. Sepals spreading out level after the petals fall, afterwards ascending. Fruit bright scarlet, in

Digitized by Google

texture like that of *R. canina*, ovate or ovate-urceolate in shape, measuring about five-eighths of an inch deep by three-eighths to half an inch broad, ripening in September, by which time the sepals have all or most of them fallen.

Of our species, this is only in danger of being confounded with the last, from which it differs by its habit of growth, which resembles that of *R. canina*, by its uniform prickles, which are less numerous, more strongly toothed, and more robust below than the large ones of *rubiginosa*, by the shape of its leaves and much fainter odour of their glands, by the shape of its calyx tube and fruit, the different texture and pleasant acid taste of the latter when ripe, by its glabrous styles, and narrow-bladed long-pointed sparingly pinnate sepals, which fall before the fruit ripens. It is not known in Scandinavia. M. Crepin identifies our plant with the Belgian *R. nemorosa* of *Lejeune*, the *R. Libertiana* of *Trattinick*, and sends me what is evidently the same plant as ours, but a specimen from Cobourg in Mr. Watson's collection, marked by Herr Hornung as the authenticated plant of Lejeune, is evidently only a sylvestral form of *R. rubiginosa*. M. Boreau and M. Dèsèglise have both informed me that our plant, as illustrated by specimens which I sent, is identical with the French plant which they describe as *nemorosa*. Their *R. micrantha* is a low bush with leaves not more than half an inch long by three-eighths of an inch broad, the terminal one narrowed at the base, slender scarcely curved prickles not more than a quarter of an inch long, small prickly calyx tube, short almost entire sepals and much smaller ovate-urceolate fruit. I have gathered our plant in two stations in Yorkshire, and possess it from a third, all three being very slightly elevated above the sea level. I have not seen it from anywhere further north, but it is evidently widely diffused through the central and southern counties.

VIII.—R. Borreri. *Woods*. Stems six to eight feet high, arched, with ascending flexuose branches. Prickles uniform, their bases three-eighths to half an inch deep, the prickle about three-eighths of an inch long, strongly hooked and the lower part robust. Well developed leaves of the barren stem three and a half to four inches from the base to the apex of the terminal leaflet, which varies from elliptical to broadly ovate with a cordate base, and measures from an inch and a quarter to an inch and a half long by about an inch broad. Leaflets full or deep green above, thinly hairy all over when young, glabrous when mature, paler beneath, hairy principally upon the veins, thinly sprinkled over with small green

Digitized by Google

viscid glands, which are sometimes confined to the midrib and secondary veins, the serratures moderately open, and each furnished with two or three fine gland-tipped teeth, the petioles pubescent and abundantly setose, and furnished with three or four falcate aciculi. Stipules with lanceolate erecto-patent auricles, the lower ones usually both pubescent and setose on the back, the upper ones and the lanceolate acuminate bracts usually glabrous, but all closely setoso-ciliated. Peduncles hispid, but much less densely so than in the preceding, the setæ and especially the aciculi weaker, sometimes altogether absent. Calyx tube gracefully ovate or elliptical urceolate, naked or casually a little aciculate. Sepals three-quarters of an inch long, the blade ovate-lanceolate, the point rather lengthened out and leafy, but not so much so as in the preceding, the more luxuriant ones furnished with two or three large toothed erecto-patent pinnæ on each side, setoso-ciliated and varying from almost naked to a good deal glandular on the back. Petals pink, from three-quarters to seven-eighths of an inch broad and deep, so that the fully expanded corolla measures about an inch and a half across. Styles hairy. Fruit ovate-urceolate, deep scarlet, in texture resembling that of *R. canina*, ripening in September, by which time most or all of the sepals have fallen.

This species is intermediate between *micrantha* and *canina*, differing from the former by the larger size of all its parts, in which it corresponds with *tomentosa* and *canina*, by the much fewer glands of its leaves, stipules and bracts, by the feebleness of the setæ and aciculi of its peduncle, or by their entire absence, by its somewhat hairy styles, and by its broader bladed sepals which are much less glandular on the back, not so much lengthened out and dilated at the point, and the more luxuriant ones copiously pinnate, with toothed leafy pinnæ. M. Dèsèglise considers it distinct from *R. inodora, Fries*, of which he has seen authenticated specimens, which I have not: but he identifies the German *R. inodora, Reich.* with our plant. Fries himself says (*Summa*) that his plant is distinct from *canina* by its densely viscid leaves and long enduring sepals, and in neither case does this seem to apply well to our plant, which is certainly not identical with, though nearly allied to, the French *R. Kluckii*. I have seen *R. Borreri* from two stations in Yorkshire —Lodge Dingle, near Settle, (John Tatham), and a hedge at Holdgate, near York, (James Backhouse)—and besides this from three counties only, Worcestershire, Sussex, and Kent. The Northumbrian *R. inodora, Winch*, may not unlikely be the true plant of Fries. It differs from *R. Borreri* by

Digitized by Google

having a few setaceous aciculi and a few setæ intermixed with its prickles, leaves more glandular beneath and the glands faintly odorous, the terminal leaflet being nearly as broad as long and much rounded at the base, by its deeper coloured flowers, more elongated calyx tube and fruit, and more persistent sepals. The specimens which I have seen were gathered in a hedge at Spring Gardens, near Newcastle, by Mr. Robertson, who reports it also from Ravensworth Woods, Durham.

IX.—R. JUNDZILLIANA, *Besser*. A vigorous bush with arching stems, about six feet in height, and the habit and appearance of *R. tomentosa*. Prickles uniform, the base about three-eighths of an inch deep and the prickle about the same length, the lower part moderately robust, the prickle curved but slightly and the point long and needle-like. Well developed leaves of the barren stem from four to four and a half inches from the base to the apex of the terminal leaflet, which is broadly ovate or elliptical, rounded or even almost cordate at the base, and measures from an inch and a quarter to an inch and a half long by fully an inch broad. Leaves full green above, thinly hairy all over when young, but becoming glabrous as they mature, glaucous or greyish green beneath, thin in texture, hairy only on the principal veins, but thinly covered all over the blade with green viscous mealy glands, the serratures open and each furnished with two or three gland-tipped teeth, the petioles only thinly hairy but plentifully setose, furnished with three or four slightly curved aciculi, and sometimes several smaller setaceous ones in addition. Lowest stipules not hairy but slightly glandular on the back, the upper ones and the ovate-lanceolate bracts almost or quite naked. Peduncles and ovate-elliptical calyx tube densely aciculate and setose. Sepals five-eighths to three-quarters of an inch long, ovate-lanceolate with the point not much lengthened out or dilated, mostly with two or three toothed leafy pinnæ on each side, tomentose towards the edges, rough on the back with setæ and aciculi, spreading out level after the petals fall, afterwards ascending. Petals pink, the flower the same size as that of *R. tomentosa*. Styles thinly hairy. Fruit subglobose or broadly elliptical urceolate, prickly or nearly naked, three-quarters to seven-eighths of an inch deep by three-quarters broad, the sepals falling before it changes colour.

Gathered by Mr. F. M. Webb and Mr. H. S. Fisher in a hedge near Morton, Cheshire, only one bush actually known. The Cheshire plant agrees well with my specimens of the French plant from M. Dèsèglise, except that the prickles are rather more robust. This appears to be in-

Digitized by Google

termediate between *R. tomentosa* and *R. Borreri*, differing from the former by its prickles, which are more of the *Rubiginosæ* than the *Villosæ* type, leaves thinner and more delicate in texture, glabrous above when mature, hairy only on the veins beneath but covered all over with fine green viscid glands and by its stipules and bracts not hairy on the back and only the lower ones glandular; and from the latter by its stout subglobose prickly fruit, peduncles and calyx tube densely beset with setæ and strong aciculi, and sepals tomentose at the edges and densely coated on the back.

X.—R. CRYPTOPODA. Prickles somewhat unequal, the larger ones uncinate and moderately robust below. Leaves from three to three and a half inches from the base to the apex of the terminal leaflet, which is ovate or elliptical, either rounded or somewhat narrowed towards the base, and measures rather more than an inch long by three-quarters of an inch wide. Leaflets greyish or glaucous green, glabrous on the upper surface, still greyer beneath, hairy only on the midrib and principal veins, but thinly scattered all over with green viscous glands, the serratures open but not deep, each furnished with several fine gland-tipped teeth, the petioles pubescent and setose, and furnished with two or three falcate aciculi. Stipules glandular on the back or even a little pubescent, the upper ones and the bracts very large, when the plant is in flower quite hiding the short peduncles, the bracts also glandular on the back but not hairy, all finely setoso-ciliated. Peduncles very short and quite naked. Calyx tube broadly ovate or subglobose, quite naked, glaucous and tinged with purple. Sepals five-eighths to three-quarters of an inch long, naked on the back but somewhat hairy towards the edges, the more luxuriant ones furnished with three or four erecto-patent toothed pinnæ on each side, all copiously setoso-ciliated. Petals deep red, the flowers measuring about an inch across. Styles villose. Fruit subglobose, not at all narrowed at the neck, measuring about five-eighths of an inch each way, ripening in September, by which time the erecto-patent sepals have all fallen.

Found by Mr. S. King in the neighbourhood of Luddenden, near Halifax, in West Yorkshire. This comes near to *R. sepium, Thuill.* from which it differs by the size, shape, and colour of its leaves, their hairy ribs and petioles, its peculiar bracts, stipules, and peduncles, subglobose fruit, slightly hairy sepals and villose styles. It is nearer still to the French *R. virgultorum, Ripart, (R. neglecta, Ripart olim, non Leman)*, but this has firm textured green leaves glabrous on both sides, more glandular beneath than in our plant, the terminal leaflet often much narrowed at the base,

Digitized by Google

petioles densely setose but not hairy, similar fruit, peduncles and sepals, but only slightly hairy styles.

R. sepium, Thuillier, is a low shrub only three or four feet in height, with long flexuose pendant or spreading branches. The prickles are numerous and somewhat unequal, the large ones about three-eighths of an inch long, not much hooked but the lower part robust. The leaves measure about two inches from the base to the apex of the terminal leaflet, which varies in shape from obovate-lanceolate narrowed at the base to elliptical narrowed out at both ends, and is not more than three-quarters of an inch long by three-eighths broad. The leaflets are bright green and glabrous, though sometimes a little glandular on the upper surface, glabrous also but more or less thickly covered with viscid glands beneath, the serratures fine and forward-pointing with fine gland-tipped teeth, the petioles densely setose but not pubescent and hardly at all aciculate. The stipules and bracts are densely glandular on the back, but not hairy. The peduncles and narrow ovate or elliptical-urceolate calyx tube are quite naked. The sepals are about five-eighths of an inch long, naked on the back, the limb lanceolate, some of them simple, some of them with two or three toothed linear erecto-patent pinnæ on each side, and are all copiously gland-ciliated. The petals are pinkish or nearly white, measuring about five-eighths of an inch each way, so that the fully expanded corolla is about an inch and a quarter across. The styles are glabrous or nearly so, the fruit being gracefully oblong-urceolate in shape, measuring about three-quarters of an inch long by three-eighths wide, with the sepals all fallen by the time it changes colour. This is a plant of Belgium, France, and other parts of Central and southern Europe. I have not seen specimens of the Warwickshire plant which is figured under this name in "English Botany," but it appears from the figure and description to come very near to the above, and may not unlikely be identical with or near to the French *R. Lemanii, Boreau*, which is stated to differ from *sepium* by its oval leaflets which are slightly hairy beneath, hispid peduncles and oblong calyx tube, which also is sometimes prickly at the base.

Digitized by Google

A LIST OF THE MACRO-LEPIDOPTERA WHICH OCCUR IN PERTHSHIRE.

By F. B. W. White, Esq., F.B.S., Ed.

Part II.—Heterocera.

SPHINGINA.

Smerinthus populi.

Acherontia Atropos, widely distributed.

Sphinx convolvuli, abundant in some years, as 1846; a specimen or two nearly every year.

Deilephila galii, fifteen larvæ of this were found on *Galium verum*, near Perth, in 1859.

Chærocampa celerio, one male, by Mr. Trotter, in 1862, near Perth.

[*C. Elpenor*, I have seen this recorded as found near Perth, but I think it doubtful.]

C. porcellus, not uncommon.

Macroglossa stellatarum, not uncommon. Larva on *Galium verum*.

Sesia bombyliformis, rare.

S. bembeciformis, round Perth, not rare. Imago seldom seen.

BOMBYCINA.

Hepialus hectus.

H. Lupulinus, rare.

H. humuli.

H. velleda, common, but local.

var. carnus.

H. sylvinus, local, but common.

Cerura furcula, not common.

C. vinula.

Notodonta dromedarius.

N. ziczac, not common.

Leiocampa dictæa, rare.

L. dictæoides, rare.

Lophopteryx camelina.

Diloba cæruleocephala.

Petasia nubeculosa, Rannoch.

Clostera reclusa, rare, there are two broods of this.

Pygæra bucephala.

Dasychira fascelina, not very common.

Demas coryli, not uncommon.

Orgyia antiqua.

Lithosia complanula, Bridge of Allan.

Gnophria rubricollis.

Nudaria mundana, local.

N. senex, rare.

Euthemonia russula, Heaths, common.

Arctia caja, two broods.

Nemeophila plantaginis, not uncommon, I have found a variety in which the yellow is replaced by white.

Phragmatobia fuliginosa, three broods.

Spilosoma menthastri.

Callimorpha jacobææ, used to be found near Perth, but seems to have disappeared.

Lasiocampa rubi, larvæ common.

L. callunæ.

Pœcilocampa populi, not rare.

Endromis versicolora, Rannoch.

Saturnia pavonia-minor, tubercles of the larva of female, yellow.

Platypteryx lacertinaria, Dunkeld.

Drepana falcataria, Kinnoull, &c.

Digitized by Google

NOTES ON THE AZURE-WINGED MAGPIE *(Pica cyanea)*, &c.

By G. F. Mathews, Esq., R.N., F.L.S.

(Continued from page 51.)

The soil through which it ran was of a soft sandy nature, and consequently a deep channel had been worn in it; in places here and there where it had been dammed up for purposes of irrigation there were deep dark pools overhung by alders and sallows, the latter in profuse bloom, but elsewhere it ran over a smooth shingly bottom, and was not more than a few inches deep; in the summer months I suspect it is nearly dry. The valley on each side the stream was divided by low banks of about a foot high into small square plots, barely half an acre in extent, and which contained the remains of a crop of apparently some species of sedge, which I believe the Portuguese make use of when cut and dried, for thatching their cottages and ricks, and also for covering and packing bottles, &c. with. In some places close to the margin of the stream no attempt whatever had been made to reclaim the ground, which was covered with a thick tangled mass of brambles, stunted willows, dead reeds, &c., and formed an excellent retreat for various species of warblers and other birds.

I must now return to the Magpies. After waiting some time and not hearing them, I imagined they had taken themselves off entirely, when all at once I heard a great noise overhead, and looking up saw the whole flock flying above me at a considerable height, but evidently with the intention of descending to a large fir tree some distance off, which they presently did; their flight is much more undulating than that of our English friend. I thought this would be a good opportunity of obtaining a successful shot, so walked towards them as cautiously as I was able, but they were still much too wide awake for me, and on one of them beginning to pipe his note of alarm the whole flock took to flight in all directions, and I was again disappointed. I did not, however, altogether despair, but reseating myself beneath the same bush I kept as quiet as possible. The birds had not gone very far, and from my silence they probably concluded all danger had passed, and very soon recommenced their lively chattering and appeared to be quite at ease. Presently I noticed one fly into a tree not more than a hundred yards from me where it was speedily followed by others, but as soon as several became occupants of the same tree they commenced squabbling violently, and of course the weakest had to give

Digitized by Google

way, and quitting the tree alighted in one quite close to the bush behind which I lay concealed; and in a few moments the trees all round me were occupied by the whole flock, and I had an opportunity of observing them at close quarters. It was getting rather late in the afternoon so they had finished feeding, their principal object seeming to be to find a suitable tree to roost in, though I doubt whether with their pugnacious dispositions they would agree well together in the same. After watching them for some minutes I thought it high time to pick out an individual to shoot, particularly as I saw one or two which were very close to me stand upright on the boughs on which they were perched and look in my direction in a very suspicious manner, so selecting one some distance off, as I wished to kill it clean, I fired and it fell into the thick head of the tree where it hung, having apparently in its death struggle tightly clasped a small branch; of course I fancied the report had frightened all the others away, but when I approached the tree and looked up for the bird I had killed, I was surprised to see several more fly out, at one of which I had an unsuccessful snap shot with my other barrel. I suppose they had remained to sympathize with their dying comrade, or else the discharge of a gun was such a novelty to them that they could not understand it. As the trunk of the tree was entirely destitute of branches for some twenty-five feet from the ground, it was a matter of impossibility to climb it, and I had the mortification of leaving the dead bird behind. Thus ends my adventure with the Azure-Winged Magpies. The next day I succeeded in making a tolerable skin of the only specimen obtained.

Among other notes made during the time we were in the Tagus in January and February last are the following;—

The Kite *(Falco milous, Lin.)* This magnificent and elegant bird, which I regret to say may now be looked upon as nearly, if not quite, extinct in the British Isles, was not uncommon in the neighbourhood of Lisbon, and might occasionally be seen soaring at a great height in the clear sky, where their graceful movements could not fail to strike the admiration of merely a casual observer. A pair frequently attended the ship at noon, hovering some distance above the river, and every now and then swooping down and clutching a piece of offal or anything else they might fancy from the surface of the water, which feat they performed with surprising dexterity, seldom making a miss. The Gulls, (of which there were several species at this time of the day, were always in hundreds astern of the ship on the look out for fragments of biscuit which are swept up

Digitized by Google

from the deck and thrown overboard, and which they eagerly devour, fighting desperately for it and making a terrific noise), took very little notice of the Kites except when they observed one had secured a larger morsel than it could swallow at once, and then they invariably gave chase and very often made him drop it; they did not then always succeed in getting it, as sometimes the kite would dash down suddenly, disperse the gulls on each side of him, and regain his lost food before it reached the water.

Bluethroated Warbler *(Sylvia suecica, Lath.)* was tolerably common at Coina, and also at Moita; at the latter place, which is a small village on the south side of the Tagus, on the line to Setubal, and the third station from Barreiro, I noticed it on the 13th February in some numbers. There were several millponds close to the village on the banks of which reeds, rushes, and a variety of plants grew luxuriantly, drooping over the muddy margins of the ponds, particularly a species of *Chenopodium;* these formed excellent retreats for those pretty little birds, who had accordingly taken up their abode there, and from which, even when disturbed, they were very reluctant to depart; every now and then flitting out and in again, or, half flying, half running, they seemed to chase the small insects which they frequently dislodged from among the tangled vegetation through which they forced their way. From its secluded habits I should imagine this species is one which might readily be overlooked.

(To be continued.)

Reports of Societies.

Huddersfield Naturalists' Society.—An ordinary meeting of this Society was held on Monday evening, June 13th; the president, Alfred Beaumont, Esq., occupying the chair. After the transaction of the ordinary business, Mr. John Armitage exhibited seven species of *Veronica*, four species of *Ranunculus*, and a fine specimen of *Atropa Belladonna*, the latter grown in his garden, but originally obtained from Almondbury Bank, where it formerly grew luxuriantly. Mr. James Varley exhibited fine specimens of *Notodonta Dodonæa* from Sherwood Forest, and *Cymatophora fluctuosa* recently caught in Wharncliffe Woods. Mr. W. H. Charlesworth exhibited a fine collection of Coleoptera, obtained during a recent visit to Sherwood Forest by some members of the Society.

Digitized by Google

Wakefield Naturalists' Society.—At a meeting of the above Society held on the 3rd June, there were exhibited many fine specimens of Lepidoptera; among others were the following, the imago of *L. venosa*, *A. præcox*, and larva of *O. dilutata*, shewn by Mr. Lumb; the imago of *H. defoliaria*, *C. curtula*, *C. Anachoreta*, *N. Dodonæa*, *C. Verbasci*, *S. lunaria*, and larvæ of *H. pennaria*, *P. pilosaria*, *H. aurantiaria* by Mr. Talbot; *L. dispar*, *O. fascelina*, *T. cruda*, *C. Anachoreta* by Mr. Gibson. In Conchology Mr. Hebden exhibited the genus *Trochus* almost complete; Mr. Roberts shewed many specimens of shells which he had recently collected in the neighbourhood of Settle, also the eggs of the Pied Wagtail one of which was almost purely white. Several birds were shewn, none of which however were rare. A large number of flowers were laid on the table and named. Mr. Gibson read an interesting and instructive paper on Entomology, giving a general outline of it as a science, and describing, from personal observation, many of the transformations of insect life.

Oswestry Naturalists' Field Club.—The first excursion for the year of this Society took place on Thursday, 9th June, and was attended by about fourteen members. The route lay along Pen-y-lan lane towards Llainforda, through the Craigforda Woods, and thence to the summit of the northern shoulder of Craig-y-rhiw, thus crossing both the Mountain limestone, and Millstone grit formations. The geologists were rewarded with a nice series of fossils from the grit, which was at one time supposed to contain no traces of former life, and were also much interested in observing the boulders of greenstone and other igneous rocks, left on the retirement of the "glacial sea" from the valley of the Ceiriog. Amongst the plants collected were, *Scrophularia vernalis*, *Anchusa sempervirens*, *Lysimachia nemorum*, *Polystichum lobatum*, *Geranium lucidum*, both species of *Chrysosplenium*, *Ophioglossum vulgatum*, *Scolopendrium vulgare*, and *Botrychium lunaria*. *Polypodium calcareum* (*Robertianum*) was seen, but not gathered, there being at present only a small patch of it growing in one locality. A grand and terrific thunderstorm drove the party from the top of the hill to the friendly shelter of some cottages, and they afterwards dined together at the Queen's Head. The business of the Club was transacted after dinner, and the balance sheet shewing a balance in hand, nearly double that of last year, a number of books were ordered to be added to the library. The next excursion was fixed for the 16th June, to meet the Caradoc Field Club at Breiddanon.

Digitized by Google

Observations.

Frogs and Toads.

It has been shown in a former number of "The Naturalist," (p. 24,) that the frog and toad are exceedingly prolific animals. To many *thinkers* the statements there made on this point will have raised several questions not easily solved, at least by those who have not had opportunities of observing their habits, &c. It will not satisfy an earnest enquirer into nature merely to be told that she may be likened to a beautiful and complicated piece of machinery, in which there are numerous wheels, levers, pulleys, screws, &c., many of which to the ignorant looker-on seem totally useless, nay positively detrimental, though to the skilled mechanist each part bears a particular relation to the rest, and plays a definite part in the working of the machine; and that therefore these creatures have their appointed duty in the economy of nature, though not known to all. For although this is strictly true—nothing in nature being without its use—he wishes to see what is the relation which these creatures bear to other parts of nature, and what is their particular office in that grand machine, if I may be permitted so to speak. With the assistance of the aquarium I will endeavour to solve a few questions that presented themselves to me under similar circumstances.

Of what use are all these tadpoles —young toads and frogs? Are they beneficial or injurious to man?

Tadpoles live almost entirely upon *decaying* animal and vegetable matter, though they sometimes—when short of food for instance—attack living organisms not even exempting their weaker brethren.

A mere cursory glance at any pond in summer is sufficient to show that it literally swarms with animal and vegetable life, while an equally superficial survey in winter reveals as great a paucity. Where then are all the beautiful forms that gave such a charm to a pond visit in summer? Gaze down through the now deep waters and the question is answered at once. The bottom is thickly strewn over with their remains. The waters are now clear and sweet. But as summer approaches the waters will dry up and this organic refuse will be exposed to the fierce rays of the sun. Decomposition will set in—copious exhalations of poisonous gases will take place—the pond will become a dangerous nuisance—a hot-bed of disease, and a focus of death.

But before this can take place—in early spring—millions of tadpoles make their appearance, and, assisted by mollusca, crustacea, insecta and infusoria, eat up this pu-

Digitized by Google

trescent matter and thus prevent those evils to which we should otherwise most certainly be subjected.

Is it not then plainly the office of these tadpoles, in part, to prevent the accumulation in ponds of these baleful substances? Whether this be their true office or not it is certain that they *do* act as scavengers, and in that capacity confer a great boon upon the human race.

Viewed in this light the vastness of their numbers is no longer problematical, but becomes at once an intelligible fact.

But having performed their appointed task of eating up these disease-creating substances, what then becomes of these myriads of tadpoles? Surely they do not all reach a state of maturity, for if so how is it that we see so few adult frogs?

Few of those vast swarms that blacken the waters in spring with their dusky forms ever reach the perfect frog. Their enemies are many, their means of defence few. They become the prey of larger or more warlike animals than themselves. These constant attacks greatly thin their numbers. Thus by the time they are fit to leave the water they are, though still somewhat numerous, much less so than at an earlier period of their existence. But having left the waters they are still exposed to great dangers. They are greedily devoured by the snake, weasel, polecat, and by nearly every species of water fowl. Then there are the young of the genus "homo" who, prompted by the unloving heart of ignorance, kill every member of the class reptilia they meet with as useless and dangerous animals. It is sad to be compelled to say that these little tyrants are not so much to be blamed as their parents, friends and teachers, for these, generally speaking, through ignorance or cruel prejudice, set them the example, or at all events do not care to check them in their career of destruction. But it is *our* duty, it is the duty of all who lay any claim to the honourable title of Naturalist to protect these and other equally ill treated creatures, from the blind fury of the ignorant. We should let no opportunity slip unimproved of showing that they are not only harmless but really beneficial. Let us not be passive spectators of this cruel injustice, but let every one be taught the truth, and then should this inhuman persecution continue, we at least can acquit ourselves of all complicity in their guilty deeds.

The greater number of these larval frogs perish at a very early period of their existence from aquatic foes. Among those animals which I have seen feed largely upon them are the following:—

Digitized by Google

The larvæ of the different species of *Libellula*. These are exceedingly destructive to them, thinning their numbers very rapidly:

Dytiscus marginalis, larva and imago, a water beetle of great power and ferocity:

The *Notonectidæ*, or boat flies, a curious race of aquatic insects:

The Newts, (*Triton palustris* and *Triton aquaticus*):

Several fish as the Bearded Loach (*Gobitus barbatula*), and the Stickle back (*Gasterosteus aculeatus*).

It is more than probable that the attacks of these and other aquatic foes, together with their land enemies, so thin their numbers that not one out one thousand of those young frogs emerging from the egg in spring ever reach their winter quarters.

Here is a powerful illustration of that "struggle for existence" which is constantly going on among the different races of organized beings —animal and vegetable. Were it not for the almost unbounded fertility of the frog and toad they would be totally exterminated in one year, by the unceasing attacks of their numerous terrestrial and aquatic foes. Should this fertility be checked by any cause whatever, these creatures, like their giant prototypes of the Mesozoic and Cainozoic ages, would soon be known only by their remains.—J. Hepworth, Wakefield.

Notes on Ornithology.

Norfolk.

Tawney Owl, (*Strix alula.*)—On the 6th instant, a fine male was shot at Moulton; two young live specimens have also been taken near Norwich.

Ring Ouzel, (*Turdus torquatus.*)—A female was shot during the first week in May.

Great Spotted Woodpecker, (*Picus major.*)—A male at Kirby, near Bungay, on the 3rd ult.

Wryneck, (*Yunx torquilla.*)—This bird seems to be plentiful here this season: I have noticed at least a dozen specimens during the last fortnight.

Common Sandpiper, (*Totanus hypoleucos.*)—Four specimens have been captured lately in this locality.

Green Sandpiper, (*Totanus ochropus.*)—A specimen about five weeks since near Upton.

Black Tern, (*Sterna nigra.*)—On the 16th of May, an adult female was shot at East Tuddenham.—T. E. Gunn, Norwich, June 10th, 1864.

The Spotted Flycatcher (*Muscicapa grisola*):—This bird is in this neighbourhood called the "Wall-chat." It is not a common bird in North Yorkshire, and it was not until 1862 that I became acquainted with it, never before 1857 having had a walled garden, with wall-trees. In 1862 I found a nest on a branch

Digitized by Google

of a trained Orleans' plum in my garden; I took out an egg, which at first sight I mistook for the egg of a robin, but was soon undeceived by a view of the parent bird. The gardener's boy finding the nest took it, and I lost the opportunity of watching the bird, but gained the information that it was the nest of the "Wall-chat," a bird unknown to me by that name. In May of the same year, being on a visit to an old friend at Kirby-Moorside, I had a good opportunity of watching the actions of this active little bird, for a pair had built their nest on the bough of a wall-pear-tree, and the hen was sat on four eggs. Both nests were outwardly composed of bent and lined with hair, with here and there a feather. The eggs were of a dull white and spotted with faint red, the spots being most numerous on the thick end. They were in appearance not unlike a robin's egg. The cock was very attentive to the female, often feeding her on the nest and taking his share of the troubles of incubation. As the nest was in full view of the front kitchen window and only three or four feet from it, I had ample opportunities of watching them during my week's visit. The male never visited the nest to bring an insect but he flew back to the head of one particular post in the garden fence; the same post served also for a resting place from which he darted to catch the passing insects, returning to the same spot when he had caught them. In June of the same year I found another nest on the bough of a trained pear-tree; in this case the nest was externally built of moss, of which there is a great variety in the woods and on the banks in the neighbourhood, and it was lined with cow's hair. The support of the espalier served for a roosting place and a point to hawk from, and it was pleasant to observe them flying to and fro. The sitting birds were very tame and in both cases allowed me to stand within a yard without leaving the nest. The pear-tree at Kirby-Moorside has a nest in it nearly every year, but I have not been able to find one here since 1862, though I have carefully looked for one.—J. Ranson, York.

Late Nesting of the Yellowhammer (*Emberiza citrinella, Linn.*) — The Yellowhammer, or "Goldy," as the Yorkshire boys call them, rear two or three broods in a year, and the last brood is frequently hatched so late as September. A few years ago I found a nest in a cornfield hedge, upon the North Moors, so late as the 28th of September. The young ones were only just hatched. I have frequently found them in August, with eggs in.—Jno. Ranson, York.

Piebald Blackbird.—A beautiful variety of the Blackbird (*Turdus*

Digitized by Google

merula) was shot at Cookham, Berks, a few weeks ago. It was rather above the ordinary size, and had a beautiful ring of white feathers going completely round its neck. At the base of the bill it had some more white feathers, which contrasted remarkably with its orange beak and jet black feathers. This one is a fine male bird, whereas all the others which have come under my notice have been female. A few years ago there was a very fine bird shot at the same place, but this was a female also. This bird was preserved by J. Ford, Junr., of Cookham, and is at present in my possession.—R. B. S.

Occurrence of the Snow Bunting at Halifax.—I have just added to my collection a fine pair of Snow Buntings (*Emberiza nivalis, Linn.*) which were shot on the High Road Well Moor, near Halifax, in the month of March last.—J. Gibson, Washer Lane, Halifax.

Singular case of a Cock cherishing feelings of Revenge.—About twelve months ago a farmer residing in the neighbourhood of Bingham, Notts, pulled some feathers from the tail of an ordinary farm-yard cock. The bird after this seemed to entertain a feeling of bitter animosity towards him; a feeling that was not diminished by any acts of kindness on his part. On the 1st of April last the farmer was engaged in foddering a cow in an outhouse, having concluded which, he moved towards the door which he had barely reached when the bird, having previously secreted itself on a beam overhead, flew down upon the farmer and struck its spur violently into his cheek, just below the eye. The pain experienced was much increased by the fact that the bird had struck so deep as to be unable to extricate itself, and as it was fluttering about the whole time it may be imagined what the pain must have been; at last, however, the spur was extricated and the bird killed. That the bird should have cherished feelings of animosity for so long a time, and in spite of any conciliatory advances made, is surely remarkable; that it was prompted by reason and memory there can be little doubt, as, had it been *instinct*, the bird would shortly have forgotten the circumstance. It had also made numerous attempts at retaliation during the whole period, and refused its food from the hands of the farmer, standing aside from the chickens during feeding time while he was present.—Henry Gamble, 8, Shawfield-Street, Chelsea, S.W., June 4.

The Robin.—On the 28th of April, I found the nest of a Robin built in a heap of dead potato tops. As it was necessary to remove this heap in order to dig the ground, I took the nest, which contained five eggs in

Digitized by Google

course of incubation, and placed it carelessly at the foot of a plum tree. To my surprise the bird returned and continued sitting. Feeling interested in the result, I surrounded the nest with a few of the dead tops, in the hope of screening it from the sight of egg-devouring or carnivorous enemies. In the course of about a week young were hatched, but, I am very sorry to say, they fell a prey to that wily and indefatigable, diurnal and nocturnal prowler, the half-fed cat.—GEO. ROBERTS, Lofthouse, Wakefield.

Stauropus Fagi.—While searching for examples of *Cidaria silaceata* in Drayton Wood, near Aylesbury, yesterday, I was so fortunate as to find a fine male *Stauropus Fagi* at rest on a small fir-tree: it looked as fresh as if it had just emerged from its pupa case. I may also mention that I took a female specimen of *Notodonta cucullina* last May in the same locality.—W. E. PARSONS, New-road, Aylesbury, Bucks, June 13th, 1864.

NOTE ON THE NUMBER OF EGGS DEPOSITED BY THE GHOST MOTH (*Hepialus humuli*), WITH REMARKS UPON OUR FRIENDS AND ITS ENEMIES.—April 27th, picked up a larva of *H. humuli* in my garden, feeding upon grass root; it changed to pupa April 29th, and appeared as a beautiful variety of *H. humuli* June 5th, having remained in pupa thirty-seven days: on piercing it with a pin it commenced to deposit its eggs, and in seven minutes deposited four hundred and thirty-eight. I removed it into another box to enable me to count those already laid, which seemed to cause it to to cease laying; on looking at it shortly afterwards it had commenced again, and though it did not lay as quickly as it had done before, it continued dropping an egg regularly until it eventually made up the very great number of eggs laid to eight hundred and sixty-eight. As this insect feeds principally on cyperaceous roots, and is an abundant insect everywhere, destroying the roots of the plants it feeds upon, the amount of mischief it does is very great; but what might it not do if it were not kept in check by birds and animals. To the Starling (*Sturnus vulgaris*) we are indebted for the most effectual check we have upon the increase of this insect; they are ever boring into the ground for this and other injurious larvæ, and especially so during April and May, when they have eggs or young; consuming countless numbers of the larvæ and pupæ. Thus on April 27th I shot a starling that I might count how many larvæ it was flying to its nest with, and in its mouth were four large full fed *humuli* caterpillars, and as I had counted the

Digitized by Google

number of times it returned to its nest in thirty minutes to be nine, we may assume this bird destroys say sixty larvæ per hour for ten hours daily, being on a low computation the enormous number of six hundred larvæ per day during the breeding season. When the great size of the larva is taken into consideration this seems almost incredible. The next best friend we have is the Mole, *(Talpa vulgaris)* and of course he is the next great enemy *H. humuli* has. This animal, living principally upon insects, is not slow to "ply havoc and let loose the 'moles' of war" at this larva, for it must prove a dainty dish to these little fellows, (whose reccent food has probably been hard wire worms, with a dirty Bot now and then, or perhaps the upturning tail of a larva of a Staphaline whose head was poison, as the head of the Gurnards, "*Trigula cuculus*" and "*Gurnardus*" are said to be by old fish wives, simply because there is naught but bone in or upon it). Shortly after, it is hatched; and doubtless its appetite grows with the growth of the larva, else with a root feeder which against the continuous attacks of its rapacious enemies, still maintains itself in strong force, how should we poor mortals destroy it; and if we could not, it would eventually destroy us and our cattle, simple as it is. Let us then as entomologists raise our voices in favour of the bird and the mole, let us shew that without them insects would so increase that we should decrease, that the food they feed upon lives upon our food, and that in destroying one we do but increase the other, to the decrease of our requirements; and let us by these little facts prove persistently our case, until "poisoned grain," "Sparrow heads," (paid for) and "Mole catchers" are spoken of as things that were; for, as I said in a little paper dated 1855, "Moles like men remove when food is scarce," and should not, nay cannot, be driven from where it is plentiful.—C. S. Gregson, Spring Hill, Stanley, near Liverpool, June 5th, 1864.

The Yew and its Galls.

It has been stated by a recent writer, who has attained to some degree of well-merited popularity, that no insect feeds on any part of the Yew, excepting its berries; and that furniture made of Yew has the recommendation of being entirely exempt from the attacks of the insect community. Recent experience, however, has proved that this statement is not altogether correct. The green and tinted bosses, so frequently covering the yew, and which call to mind miniature representations of the artichoke, are the work of a dipterous insect *(Cecidomyia Taxi)*. In June, 1861, I succeeded in hatching a considerable number

Digitized by Google

of these gall-gnats. Each boss contains a single insect, which lives through the winter in its nest of closely fitting leaves. The economy would seem to be as follows. Early in June the parent gnat deposits an egg in the heart of a young and tender yew-bud. This, instead of being developed, gradually assumes the tuft-like appearance I have described. The egg hatches, and the larva thus has its food and shelter provided. In this tuft it feeds through the autumn and winter. In the succeeding spring it enters on the pupa stage of its existence, gathering intensity of colour as it approaches maturity, and in June it comes forth a beautiful orange-coloured gnat. When Professor Loew, of Posen, brought out, in 1850, his elaborate monograph on the *Cecidomyiæ*, the insect was unknown. ("Noch ganz ungewiss ist"). I may just remark that the gnat presents a tolerable appearance, being nearly equal in size to the largest of the willow-gall gnats. The galls occur, often abundantly, on yew trees near Woodsome Hall.—P. INCHBALD, Storthes Hall, June, 1864.

Notes and Queries.

Relaxing Coleoptera.—Can any of the readers of the "Naturalist" inform me of any means of relaxing Coleoptera, or of keeping them in a relaxed state for two or three days after killing them. I find that specimens killed by immersion in hot water become quite stiff in a very short time, so that if not set immediately it is almost impossible to do so.—W. H. C.

Exchange.

I have the following Insects in good condition, viz.:—*N. Lucina*, *A. Selene*, *T. fimbria*, *T. janthina*, *M. belgiaria*, pupæ of *P. monacha*, and larvæ of *N. Lucina*, and *A. Agathina*. My wants are *C. Hyale*, *C. Edusa*, *E. Cassiope*, *A. cratægi*, *A. Galathea*, *C. cardui*, *P. Adonis*, *L. quercus*, *A. flexula*, and larvæ of most of the Hawk Moths.—JNO. BENN, Junr., Wortley, near Leeds.

I have larvæ of *E. lanestris*, and *L. camelina*, also a few pupæ of *E. lichenea*, to exchange for larvæ or pupæ of other species. My wants are too numerous to mention, but applicants must please write before sending boxes.—J. ROHNER, Upton Vale, Torquay.

D. carpophaga.—I have upwards of twenty good specimens of *D. carpophaga*, for which I shall be glad to receive offers of exchange. I shall also be glad to exchange lists with collectors.—J. GARDNER, 1, Victoria Place, Hartlepool.

Digitized by Google

Reports of Societies.

Halifax Naturalists' Society.—The members of this Society made their first Botanical Excursion this season, to Salterhebble, on Tuesday, June 28th, conducted by Mr. Gibson, V.P. About 170 species of plants were gathered, many of them rare, including two or three species which have not been noticed hitherto in this neighbourhood. On their return to the meeting room Mr. Bates gave an interesting description of the rarer species, with remarks on their varied structure and uses. It was resolved that the excursions should be continued and that the Annalist should be furnished with the results, from which a complete list, so far as practicable, should be published at the end of the year.

London Society of Amateur Botanists.—At a meeting held on the 6th inst., at No. 197, Piccadilly, the president, M. C. Cooke, Esq., in the chair, Mr. W. T. Dyer read a paper on "*Daphne Mezereum*," with especial reference to its re-discovery at High Wycombe, Bucks, a locality for this rare plant which is not given in any of the British Floras. Mr. Harland Coultas then read an interesting paper on "The Philosophy of Leaves," illustrated with original drawings, in which he demonstrated that leaves in general have a tendency to produce leaflets, and that a lobed leaf was but a leaf endeavouring so to do. This theory he termed "leaflet-genesis;" it is illustrated in the case *Rubus discolor*, &c. Specimens of *Ranunculus ophioglossifolius*, and other Jersey plants, were then presented to the Society by one of the members. An excursion to the railway cuttings at New Cross, Surrey, was arranged for Saturday, the 9th inst.

Observations.

Unio margaritiferus.—As remarked by your querist, Mr. Parke, nearly all the Isle of Man hand-books inform us that *Unio margaritiferus* is found in the Dhoo, or Black River, near Kirk Braddan, and that it was formerly much sought after on account of the valuable pearls it sometimes contained. Acting upon this information I have, on more than one occasion, searched very diligently for this shell, commencing at Kirk Braddan and following up the course of the river past Union Mills and nearly to its source, but without finding a single specimen. The country people assured me that they used to be found by hundreds; that pearls had been obtained from them which sold for as much as a guinea each; that they still occurred

Digitized by Google

in the river, though somewhat sparingly; and that very few now contained pearls. To remove all doubt as to their existence several half shells were shown to me. These are turned to a useful account by the thrifty Manx housewives who use them for scoops, and for scraping out the nutritious morsels of the porridge pot. In the course of my enquiries, I met with an old gentleman who not only gave me some curious facts as to the habits of this *Unio*, but also procured me some fine living specimens, one of which contained a small but not very brilliant pearl. This was Mr. Oates, of Kirk Braddan, through whose farm the Dhoo runs. He is a good specimen of an honest warm-hearted Manx farmer, and I trust caught no cold in catching me "black-mussels." *Unio margaritiferus* loves to lurk in the shallow and quick-running parts of the river, amongst the gravel and small stones, and as the shell generally burrows in a somewhat oblique position only a small portion of it is visible, and this being black and not unfrequently covered with a little moss, requires a well practised eye to detect it amongst the surrounding stones, for one of which it may be easily mistaken. It seems very susceptible to the action of light, for under the full blaze of a bright midday sun it emerges more out of the gravel and protruding a portion of its body through the partly opened valves of the shell is the more readily distinguished. If the sun becomes overcast or the water above the shell be muddy it immediately closes, and, to a person not well conversant with it, is then very difficult to find. The country lads generally select a bright noonday to look for them, and take them either by wading, or by thrusting the end of a long slender rod into the half open shell, which instantly closes upon it and it is then dragged to land. I shall probably be visiting the Isle of Man again in September, and hope a few more specimens will be ready for me, which I shall have much pleasure in distributing amongst such Conchologists as may want them. I may observe that I found about fifty specimens of *Pupa umbilicata* congregated in a single tuft of grass growing upon one of the "rope-stones" of a barn at Balladoole, near Castletown; and that from another small tuft of coarse grass growing upon the top of a dry wall near Kentraugh, I procured twenty specimens of *Helix umbilicata*. *Balea fragilis* was tolerably abundant under the top stones of a shaded wall between Douglas and Kirk Onchan; near the latter place I found a singularly contorted specimen of *Helix nemoralis*. — JOHN DIXON, General Infirmary, Leeds.

Digitized by Google

The Roses and their Galls.

Three or four roses occur in this immediate neighbourhood. They are *Rosa canina*, *R. arvensis*, and *R. villosa*. Another species is common to the sandy sea-shore, as also to mountains, this is *Rosa spinosissima*. The galls of which I have to speak chiefly affect *R. canina* and *R. spinosissima*. Every one must have noticed those tufted moss-like productions on our hedge rose, known by the name of bedeguars. These beautiful productions may be found late in the summer and in autumn, when the leaves begin to change; they too assume intensity of colour, being prettily tinted with red and green, and becoming at this season of the year a great ornament to our hedge-rows. They serve as a nidus through the winter and spring for a whole colony of gall-flies, of the order Hymenoptera, scientifically known by the name of *Cynips Rosæ*.

The economy is this:—The parent fly, which is blackish brown with the abdomen ferruginous and strongly arched, pierces the young shoots of the rose, laying her eggs within the shoot. The juices of the part pierced become languid, and these singular growths supervene; and as it is the natural tendency of the rose to clothe itself with prickles, so we find the galls thickly covered over with fibrous bristles. Each bedeguar contains many separate cells, and each cell gives exit to a single tenant, and it is really surprising with what rapidity the gall-fly eats its way through the hard little hollow globe that keeps it a close prisoner till it assumes the imago state of existence. On removing the bristles from the bedeguar, the small circular openings through which the gall-flies have made their exit are readily seen.

Visitors to the sea-side, in the summer, can hardly fail to have noticed the little red balls that beset the prickly Burnet rose. Hardly any part of the plant seems free; the calyx itself is made to assume unsightly proportions, while the stem and leaf-stalks offer a series of ruddy wens of varied size and form. These are the work of a tiny gall-fly (*Cynips Rosæ spinosissimæ*). Each wen is tenanted by a single Cynips, which finds therein its nutriment and shelter till it puts on wings and leaves its singular home.

The galls are smooth, thus differing from those of the hedge-rose. This circumstance, I may remark, is the more strange, when we consider how much more spiny is the stem of the Burnet rose, as compared with our friend of the green lanes and hedges. The insect differs from the *Cynips Rosæ* both in size and colouring.—P. Inchbald, Storthes Hall, June 24th, 1864.

Digitized by Google

A Few Plants observed near Barnetby-le-Wold and Caistor, Lincolnshire, Chiefly in August, 1862.

By James Britten.

Anemone apennina. Near the mausoleum, in Brocklesby Park, near Caistor; plentiful.

Chelidonium majus. Hedges at Searby, near Barnetby.

Corydalis solida with *Anemone apennina:* also at Hundon, near Caistor.

Drosera rotundifolia. At Wrawby Moor, near Barnetby.

Sagina nodosa. Damp ground by the railway, at Barnetby.

Malva moschata. The white variety occurred in a wood near Barnetby.

Oxalis stricta. Wall and garden paths at Hundon.

Trifolium arvense. Nettleton moor and the Sandbraes near Caistor; very abundant.

Spiræa Filipendula. Brocklesby Park and Hendale Woods, near Caistor.

S. salicifolia. Hendale Woods; probably planted.

Geum rivale. Woods about Barnetby.

Epilobium angustifolium. Hendale Woods; in great abundance.

Conium maculatum. About Caistor.

Arnoseris pusilla. Wrawby Moor.

Gentiana Pneumonanthe. Wrawby Moor; also on Nettleton Moor, near Caistor, as recorded by Johnson in *Ger. Emac.*

Menyanthes trifoliata. Wrawby Moor.

Linaria minor. On the railway at Barnetby.

Galeopsis versicolor. Cornfields, Barnetby.

Pinguicula vulgaris and *Samolus Valerandi.* Damp ground near the railway, at Barnetby.

Anacharis Alsinastrum. Large ponds near the Barnetby Station; flowering profusely, August, 1862.

Alisma ranunculoides. Small pool by the Barnetby Station.

Sagittaria sagittæfolia. Ditches about Barnetby.

Correspondence.

To the Editor of the Naturalist.

Sir,—I saw with regret in a county paper (*Stamford Mercury*), of yesterday, that three of those fine birds, the wild swan, had been lately shot at Winthorpe-in-the-Marsh. It seems they alighted in a field, and being disturbed, flew up, and descending at no great distance, joined a flock of tame geese, out of which they were shot by a Mr. Whaler, of Winthorpe. This is another instance of the welcome accorded to many rare and curious birds, which, might very probably, if undisturbed, breed and remain with us in the summer months, if not all the year.

I am, with sincere regret,

Faithfully yours,

18th June, 1864. Amicus.

Digitized by Google

Original Articles.

THE REV. GILBERT WHITE'S THREE WILLOW WRENS.

By John Ranson.

In that delightful, gossiping book, "The Natural History of Selborne," in a letter (No. 16) to Thomas Pennant, Esq., the Rev. Gilbert White first mentions his discovery of three species of the Willow Wren, as follows:—"I make no doubt but there are three species of the Willow Wrens; two I know perfectly, but have not been able yet to procure the third. No two birds can differ more in their notes, and that constantly, than those two that I am acquainted with; for the one has a joyous, easy, laughing note, the other a harsh loud chirp. The former is everyway larger, and three quarters of an inch longer, and weighs two drams and a half, while the latter weighs but two; so that the songster is one-fifth heavier than the chirper. The chirper being the first summer bird of passage that is heard (the wryneck sometimes excepted) begins his two notes in the middle of March, and continues them through the spring and summer till the end of August, as appears by my journals. The legs of the larger of these two are flesh-coloured; of the less black." In letter 10, he writes "Mr. Derham supposes, in 'Ray's Philosophical Letters,' that he has discovered three. In these there is again an instance of some very common birds that have as yet no English names." The three birds here mentioned are *Sylvia sibilatrix*, *Sylvia trochilus*, and *Sylvia hippolais*, and the dates of the letters are 1768. This gives us an insight into the state of English Natural History one hundred years ago; when birds differing so much from one another in habits, song, nesting, and other peculiarities, had no English name, and had not been clearly distinguished by the learned as three species.

The Wood Wren *(Sylvia sibilatrix.)* This little bird is about the earliest of our summer visitors, and, as White has well observed, the male may be heard as early as the middle of March, and continues to pipe his little song until his departure in August. The song is a very poor one indeed, consisting of two or three notes, and it by no means entitles him to the appellation of the wood warbler which some writers give him. The male birds are said, and I believe truly, to arrive some days

Digitized by Google

before the females. In this neighbourhood, (York,) but more particularly in the neighbourhood of Kirby-Moorside, Yorkshire, they are common, and add very much to the pleasure of a walk by their pleasant chirp, (for this bird is White's chirper) and the mode in which they fly into the hedges and bank sides. The motions of birds are, to the eyes of the true lover of nature, as grateful as their songs are to his ears. The nest is a domed one, and is built on the ground amongst grass. I found one this season when fishing in the Hyle; it was on the crown of the bank, and close under the largest branch of a fallen willow. The materials are grass, bents, moss, and occasionally leaves, and the lining is hair. The eggs, which are six in number, are white, spotted and speckled with plum-red. This little bird is sometimes called the Yellow Wren, and is frequently confounded with the Willow Wren by careless observers; why it should be called either the wood warbler or wood wren I could never understand; because it is not, here at least, a wood bird. I have found scores of nests, and have most frequently found them on bank sides; and they seem to me to prefer the neighbourhood of willows, the dead leaves of which frequently enter into the composition of their nests. They are very tame, and when they visit my garden in quest of currants, or to enjoy a sly nibble at my cherries, they will hop on to the branches and peck away within a yard of me, and I have known them sit on their eggs until they were lifted off. I should as soon think of killing a Robin as either a Wood Wren or a Yellow Wren, and never could find in my heart to deny to these innocent and loving birds a bunch of currants or a cherry.

The Willow Wren *(Sylvia trochilus.)* This is a very lively bird, and is known by a great variety of names to rustic naturalists. About Kirby-Moorside it is called "Mealy Mouth;" it is known in other parts of Yorkshire as the "Hay-bird," and is also called the "Ground Wren," "Meadow Wren," "Yellow Wren," and "Scotch Wren." It is a much better known bird than the Wood Wren, and the nest is much oftener found, being generally placed in tufts in cow pastures. During hay harvest the nests are frequently found in meadows and by bank sides. The old ones and the young of the first brood may be seen hunting for insects upon the newly mown grass; at such times it is in incessant motion, catching insects on the wing. It is an early visitor to this country, generally appearing in April, when its song may be heard in the fields and its favourite haunts. The song of the Willow Wren is very pleasant, and has been pronounced by competent judges to be "soft and

Digitized by Google

pleasant." The nest is like that of the Wood Wren, with the exception of being lined with feathers instead of hair, and the eggs, six or seven in number, are white, with spots of reddish brown, numerous at the thick end. The Willow Wren always lines her nest with feathers, and the Wood Wren with horse-hair, and sometimes horse-hair and soft grass, but never with feathers. The lining will always point out to which bird the nest belongs, and saves much trouble to the Oologist. Unlike the Wood Wren, the Willow Wren is very uneasy at the approach of any one to her nest, particularly if it contains young ones, and thus she often betrays her secret by her over anxiety.

THE CHIFFCHAFF, *(Sylvia hippolais,)* was called by White the Least Willow Wren, and is known to "the many" by the name of "Pettychaps." In March the Chiffchaff makes its appearance in our gardens, and from then to its departure in August its monotonous song consisting of the two syllables *chiff-chaff* is continually heard. I have always been much pleased with this industrious little bird, and have frequently watched it hawking for flies. Standing on an espalier it darts upon its prey as it flies by, and then returns to its perch. Very kind and attentive is the male bird to his mate when she is sat on her eggs, often feeding her with flies, and treating her with a specimen of his vocal powers, doubtlessly more pleasing to her than the song of the Nightingale would be. The nest is generally placed on or very near the ground in a low bush, or in a thick tuft of grass, and very often among the coarse herbage on a bank side. It is oval shaped, with a round hole near the top; it is made of coarse grass, intermixed on the outside with dead leaves, and profusely lined with feathers. The eggs are generally six in number, and are not unlike the eggs of the Willow and Wood Wren, being speckled with dark purplish-red. In fact the eggs of the three Willow Wrens are very much alike, and it would be difficult to distinguish them in the absence of the nest. The Chiff chaff is very fond of cherries and currants, and does, at times, considerable damage in gardens where these fruits are much grown. The presence of an old cherry-tree in a garden gives the naturalist a favourable opportunity of studying the habits of some of our summer visitants. The Willow Wrens chiefly feed on insects and caterpillars, and earn, a thousand-fold, their right to a few currants or cherries.

Digitized by Google

NOTES ON THE AZURE-WINGED MAGPIE *(Pica cyanea)*, &c.

By G. F. Mathews, Esq., R.N., F.L.S.

(Concluded from page 71.)

Sylvia melanocephala, Lath. These lively and interesting little birds were exceedingly numerous all around Lisbon, haunting gardens and dry hedges in preference to low marshy situations, or thick woods; and might generally be seen flitting from bush to bush in search of food, at the same time uttering a soft call-note, which, on the approach of anyone, would be changed to a harsh grating sound, something similar to that made use of by our common whitethroat when its nest or its young are endangered by the presence of a suspected enemy. The males appeared greatly to predominate, and among other habits, delighted in flying from the summit of a bush into the air some thirty feet high, where, fluttering for a few moments with seeming difficulty, they would pour forth a short and not unpleasing song, descending at its conclusion into the depths of the hedge as if ashamed of their performance.

Sylvia provincialis, Bl. and Ks. (Dartford Warbler). I observed but a pair of these birds, one of which I shot, on a large open piece of country near Almada. They were flying about some heath and broom bushes and I at once recognized them.

Sylvia cisticola, Lin. This beautiful and minute species was common in every marsh, always on the move, flitting from one clump of rushes to another in quest of food, sometimes varying their operations by flying into the air in chase of small insects, snapping at them and making a noise with their beaks after the manner of our Spotted Flycatcher. They were evidently of a very fearless disposition, as they allowed one to approach them within a few yards as they sat swinging to and fro on a single rush.

Of our British species of *Sylviadæ* I noticed *locustella, Phragmitis, atricapilla, cinerea, sibilatrix, trochilus,* and *rufa,* the three latter being by far the most abundant. Many of these were doubtless awaiting the arrival of spring to migrate northward, and enliven with their sweet melodious warblings the shady lanes and green woods of old England.

Alauda calandra, Lin. This magnificent Lark was tolerably common in some localities near Lisbon, haunting especially the semi-uncultivated country in the neighbourhood of Villa Franca and Reguengo, feeding together with our common *A. arvensis,* but at once to be distinguished from

Digitized by Google

that species by its large size, stout appearance, short tail, and clumsy beak, and besides which its call-note is loud and harsh, and somewhat resembles that of our common Bunting. The males when singing attain to a great height, and their habits when so employed are strikingly dissimilar from that of *A. arvensis*, their wings not being moved with that incessant vibration which so characterizes that species; when rising they seem as it were to soar with less effort and with a certain graceful undulating motion, and also describe much larger circles. Their song, heard at a distance, is exceedingly soft and beautiful, but when near it is piercing and unpleasant. This appears to be one of the favourite cage birds of the Portuguese, as in some of the streets of Lisbon one might see them hanging (generally in cages much too small for the size of the bird) outside every house, and frequently the poor captives would take it into their heads to sing against each other with all their strength, and on such occasions it was anything but agreeable to be in the street. These birds are excellent eating.

Alauda cristata, Lin. This bird was not rare, but I never observed it flocking together with any other species; they were invariably to be seen in pairs frequenting dry roads and paths, sometimes in the most public places, where they were very fond of dusting themselves and preening their feathers.

Emberiza cia, Lin. This species was not uncommon in low marshy localities in the vicinity of Coina, Almada, &c., and I also occasionally met with it in gardens feeding in company with *E. cirlus*, *Fringilla serinus*, &c. It appears to delight in sitting on the top of a dead reed or low bush, where it would remain for a considerable time singing its monotonous song, and when so engaged would allow one to approach within a short distance of it.

Fringilla serinus, Lin. This elegant little species was very numerous everywhere in the neighbourhood of Lisbon, and sometimes I observed them in large flocks assembled in fields where there was an abundance of short dry grass, upon the ripe seeds of which they fed. On one occasion I fired at a flock with a small walking-stick gun (which, when going for a ramble in the country, I generally took with me for the purpose of securing specimens) and shot five individuals, upon one of which I was much surprised to discover two large parasites about the size of an ordinary dog-tick. These creatures were situated at the back of the bird's head in a spot quite impossible to be reached, and must have caused intolerable

Digitized by Google

annoyance; indeed it is wonderful how the little bird could have lived with two such monsters continually draining its system.

Fringilla citrinella, Lin. This bird was not so common as the preceding, but still by no means rare, frequenting gardens, where it seemed to be very fond of selecting some old lichen-covered olive tree, in which it would repeat over and over again its simple song.

Hirundo rupestris, Scop. This very distinct species I observed several times in large flocks flying above the swampy valleys near Coina and Moita, and succeeded in securing several examples. During clear fine weather they kept very high, but on the approach of rain descended, and I then very often noticed them skimming over the surface of the water, every now and then dipping in, more for the purpose of securing a fly which might be floating on the stream than for the pleasure of a bath. In October and November, 1862, I recollect seeing them in great profusion flying about the rock of Gibraltar.

Hirundo rustica, Lin. Many individuals of this species made their appearance about the middle of February in the same localities as the preceding, and most probably as the season advanced proceeded on their journey northward. This bird, as well as *Cypselus apus, Illig.*, was frequent at Madeira, in December, 1863, flying over the town of Funchal.

NOTES ON THE NATURAL HISTORY OF BARBARY.

By F. Brittain, Esq.

Tangiers, 28th May, 1864.

Dear Sir,—I have now the pleasure of sending you a list of the rare Birds and Coleoptera that are found in the North of Barbary, as far as I have been able to ascertain them. I could give you very little information respecting the Lepidoptera and Diptera, and therefore postpone writing about them till another time. As from a bare list of plants, birds, and insects you would be able to form but a poor idea of this charming country, I shall give you a short account of one of my rambles in the neighbourhood of Tangiers.

On a delightful sunny morning in the end of May, I left Tangiers with Hamet, the Moorish guide, intending to follow no beaten track, but go where the country was the most inviting, and the vegetation the most luxuriant. We passed over a hilly sandy country which offered few attrac-

Digitized by Google

tions, until we reached some pretty orchards and vineyards. Here nature was all activity, every tree and bush was alive with insects; butterflies of the gaudiest colors were flitting from tree to tree, and from sweet-peas, roses, and honeysuckles bees were busily extracting honey; sometimes a heavy beetle buzzed lazily past us, and the grasshoppers kept up their peculiar whirring sound without intermission. Behind the hills that shut out from us the sea-breeze the rays of the sun were very powerful, and I was glad when we reached a shady lane and found a refuge from the scorching heat. For nearly a mile we now followed a very narrow path that led through groves of orange, fig, and pomegranate trees. The vegetation as we passed along was constantly changing, sometimes on each side a hedge of canes rose to the height of nearly twenty feet, meeting in an arch over our heads; and then we passed hedges of willows and brambles intermixed with the fantastic limbs of the Barbary fig, round which were twining *Convolvulus sepium*, and *purpurea*, and *Lathyrus odoratus*, covered with their beautiful flowers; from these we passed to rose trees, vines, acacias, and occasionally pomegranate trees, spangled with their brilliant scarlet blossom. Innumerable climbing plants crept up the stems of the trees and hung their flowers from the arch above, the gayest and the most abundant of all being the Indian Nastursium, so common in our own gardens. After we had proceeded a few hundred yards the foliage became so dense that the rays of the sun could not penetrate it. It was impossible to go farther without sinking over the ankles in mud at every step. Hamet took off his shoes, and I mounted on his shoulders and was carried by him two or three hundred yards. I think these dark places were the most beautiful, but not liking the mode of travelling I was glad to reach dry ground. In the exposed places where the foliage was scanty we frequently disturbed long curiously marked snakes that were warming themselves in the sun. I got close to one, more than two yards long before I saw it. They are extremely abundant in Barbary, and two or three species are very venomous. Lizards of all colours and sizes were darting about among the aloe leaves, but at our approach they soon disappeared.

You will easily imagine what a delightful chorus the birds kept up all day. The North of Barbary is like a great *caravansary*, whence many of our summer visitors take their departure for our shores, and where they arrive upon their return in autumn. The number of birds is very great, and these thick groves of fruit trees afford them a retreat where they can pour forth their delightful songs in undisturbed security. The first to

Digitized by Google

announce the approach of day, before the sun's first rays have shot from the East—the nightingale, *(Sylvia luscinia)*—opens the chorus, and long after the sun has set, when all other voices are hushed and the silent night seems listening to his song, he is singing all the other birds to sleep.

After leaving the shady lanes we entered the open country and followed the banks of a stream, over which bright scarlet, blue, and green dragon-flies were darting in every direction. The stream abounded with land tortoises, many of which were more than a foot long. I noticed great numbers of that interesting beetle, *Ateuchus laticollis*. It is very amusing to observe its manœuvres, I saw one bury the ball of dung and dirt containing its egg, after it had sought some time for a suitable place. When it had disappeared beneath the sand I put a very large specimen of the same species close to the place where it was busy underground. The large one held its head on one side in an attitude of great attention, made some sharp movements, and then began digging. It soon reached the other beetle and a battle ensued, the one that had been disturbed rose to the surface, and putting its head under the body of the intruder threw it over its back to the distance of several inches. The other nothing daunted returned to the charge and they closed for a regular battle. There was a deadly struggle for some time, during which their legs rattled and bent and they rolled over each other time after time. At last the legitimate owner of the egg was forced to give up the unequal contest and take to flight.

During our walk I noticed a long procession of large black ants, each of which was carrying a grain of a small species of barley, I followed the track of the ants to a patch of barley, but could see none of them at work. At last in a place where the grain was the ripest I found every ear covered with them; it was very interesting to watch their curious way of reaping; they pulled the grains out of the ear by main force, shaking them from side to side to loosen them. A number of these industrious little creatures would soon clear a field.

[The above interesting sketch is extracted from a letter to the Editors, and will shortly be followed by a similar one of a day's excursion in the neighbourhood of Cape Spartel, and also with lists of the Birds, Coleoptera, and Plants of the Northern portion of Barbary. Eds. Nat.]

Digitized by Google

REVIEW OF THE BRITISH ROSES,

ESPECIALLY THOSE OF THE NORTH OF ENGLAND.

By J. G. Baker, Esq., of Thirsk.

Part IV.—CANINÆ.

Robust bushes with more or less conspicuously arching main stems and diffuse branches. Prickles uniform, robust below and narrowed gradually from the base to the point. Leaves simply or doubly serrated, glabrous or slightly hairy above, glabrous or somewhat hairy beneath, but never more than slightly glandular. Sepals reflexed or erecto-patent on the fruit, deciduous or sub-persistent, usually glabrous, but sometimes glandular on the back. Peduncles usually naked, occasionally aciculate and setose. Styles free, varying from almost glabrous to densely villose.

XI.—R. Canina. *Linn.* The plants included here differ from one another widely, if we take the extremes, in many points of importance, especially in the shape, toothing and clothing of the leaves and stipules, the texture and time of ripening of the fruit, and the direction and duration of the sepals; but in spite of this, each of them, is always connected with the one that is nearest to it very closely. We have here an excellent illustration of what one school of botanists considers to be a single variable species, and what another school considers to be a large group of closely allied species. As furnishing an illustration bearing instructively upon the question of the nature of species, I have taken considerably more pains with the English Caninæ, than I should otherwise have done. The following are as good descriptions as I am in a position to furnish of the English Dog-roses which have come under my notice, and I would ask the particular attention of my readers to the two points to which allusion has just been made, how widely the extremes differ, but how gradual is the transition between them, by intermediate stages of gradation. With the kind aid of M. Dèsèglise, to whom I am indebted for excellent specimens of nearly all the *Caninæ* described in his Monograph, I have identified as far as I can our plants with those of the Continent, with what result will appear from the list. Nearly all the forms have arched stems from six to ten or even twelve feet in height, plentifully furnished with lithe greenish ascending branches. The prickles are uniform and either falcate or uncinate, their base from three-eighths to half an inch deep, the prickle curving gradually from this to the point,

Digitized by Google

and consequently the lower part more robust than in any of the previous groups, The flowers are from one and a half to two inches across, generally pale pink, and the measurement of the leaf and leaflets about the same as in *R. mollissima* and *tomentosa*.

SUBSECTION I. EU-CANINÆ. Leaves not glandular beneath, peduncles naked or very nearly so, fruit stone-hard when green, not ripening till October or the latter part of September, the sepals reflexed after the petals fall, and deciduous before the fruit changes colour.

(A) Leaves glabrous on both sides.

1. *R. lutetiana, Leman. R. canina, Boreau and Dèsèglise.* Leaves full green or somewhat glaucous green, not flat, firm in texture, glabrous on both sides, the terminal leaflet ovate, narrowed or somewhat rounded at the base, the serratures numerous, simple, sharp, and connivent, the petioles naked or nearly so, but furnished with three or four hooked aciculi. Stipules and bracts naked on the back, not at all or only the auricles setoso-ciliated. Peduncles naked. Calyx tube and fruit varying from ovate-urceolate to subglobose, the sepals leaf-pointed, and fully pinnate, naked or slightly hairy on the back towards the edge, hardly setoso-ciliated. Sepals reflexed after the petals fall, the fruit ripening in October or late in September, before which the sepals fall. Styles slightly hairy.

2. *R. dumalis, Bechst. R. canina, Leman. R. sarmentacea, Woods. R. glaucophylla, Winch.* Habit of growth and prickles of the normal plant. Leaves full green or glaucous green, not flat, firm in texture, glabrous on both sides, the terminal leaflet ovate, narrowed or somewhat rounded at the base, the serratures neither so numerous nor so close as in the preceding, each or several furnished with from one to three gland-tipped teeth, the petioles more or less setose, but not hairy or only very slightly so, but furnished with three or four hooked aciculi. Stipules and bracts naked on the back, but closely setoso-ciliated. Peduncles naked. Calyx tube and fruit varying from ovate-urceolate to subglobose, the sepals leaf-pointed and fully pinnate, naked or slightly hairy on the back towards the edge, more or less densely setoso-ciliated. Fruit as in the preceding. Styles hairy, sometimes a little protruded. Very common.

(B) Leaves glabrous above, hairy on the veins beneath.

3. *R. urbica, Leman. R. collina, β Woods. R. Forsteri, E. B. S.* Habit of growth and prickles of the normal plant. Leaves full green or glaucous green, not flat, firm in texture, glabrous above, hairy on the ribs

Digitized by Google

beneath, the terminal leaflet ovate, narrowed or somewhat rounded at the base, the serratures numerous, sharp, simple, and connivent, the petioles villose, but only slightly setose, furnished with three or four hooked aciculi. Stipules and bracts slightly hairy on the back, a little setoso-ciliated. Peduncles naked. Calyx tube and fruit broadly elliptical or subglobose, the sepals leaf-pointed and fully pinnate, hairy on the back towards the edges, slightly setoso-ciliated. Fruit as in the preceding. Styles hairy. This and the two preceding appear to be much the commonest British *Caninæ*, and to be quite identical in the nature of the fruit and duration of the sepals. A closely allied plant from Naunby bank, and hedges at Sowerby, near Thirsk, with slightly double serrations, peduncle a little aciculate, sepals not fully reflexed and a little glandular on the back, is referred doubtfully by Dèsèglise to *R. platyphylloides, Ripart.*

4. *R. platyphylla, Ran.* Habit of growth and prickles of the normal plant. Leaves flat, grey-green, glabrous on the upper surface, glaucous beneath and hairy upon the ribs, firm in texture, the serrations moderately sharp and connivent, somewhat unequal but not truly double, the terminal leaflet varying from ovate rounded at the base, to broadly obovate, in fine specimens measuring two inches long by an inch and a half broad, the petioles densely villose, but hardly setose, furnished with several hooked prickles. Stipules and bracts slightly hairy on the back and a little setoso-ciliated. Peduncles naked. Calyx tube and fruit broadly ovate or subglobose, the sepals leaf-pointed and fully pinnate, pubescent on the back, but hardly at all gland-ciliated, reflexed after the petals fall. Styles villose. The ripe fruit I have not seen on British specimens. Giggleswick and Settle, West Yorkshire.

(C) Leaves more or less hairy on both sides.

5. *R. uncinella, Bess.* Habit of growth and prickles of the normal plant. Leaves flat, grey-green, slightly hairy on the upper surface when young, but glabrous when mature, greyer still and hairy all over beneath, so that the edge is ciliated, firm in texture, the serrations simple, spreading and open, as broad as they are deep, callous at the tips, the terminal leaflet broadly ovate or obovate, much rounded at the base, the petioles villose but hardly at all glandular, furnished usually with two or three hooked prickles. Stipules and bracts slightly hairy on the back, dentate but hardly at all gland-ciliated. Peduncles naked. Calyx tube and fruit large, broadly elliptical or subglobose, the green fruit rather more pliable than in the preceding, the sepals reflexed after the petals fall, leaf-pointed

Digitized by Google

and fully pinnate, tomentose and slightly glandular on the back, hardly at all setoso-ciliated. Styles villose. Banks of the Yore at Aysgarth Force, North West Yorkshire.

6. *R. dumetorum, Thuill. Woods.* Habit of growth and prickles of the normal plant. Leaves flat, grey-green, thinly hairy all over above when young, greyer still and hairy all over beneath, thicker and softer in texture than in any of the preceding, the terminal leaflet large, broadly ovate, rounded or often cordate at the base, the serrations simple, open, and neither sharp nor deep, the petioles villose but hardly at all setose or aciculate, stipules and bracts hairy on the back, dentate but hardly at all setoso-ciliated. Peduncles naked. Calyx tube and fruit with us usually large ovate-urceolate, sometimes subglobose, the green fruit more pliable than in the preceding and ripening rather earlier. Sepals fully pinnate and leaf-pointed, reflexed after the petals fall, hairy on the back, but hardly at all gland-ciliated, deciduous before the fruit ripens, which with us is in the latter fortnight of September. Flowers somewhat deeper in colour than in the preceding. Fruit in the large ovate-urceolate form, fully an inch long. Frequent. This is intermediate in appearance and the character of its leaves between *R. lutetiana* and *coriifolia*, but as regards the fruit ranges best here.

7. *R. pruinosa. R. cæsia, Borrer in Bri. Fl. in part not E. B.* Stems less arching and prickles more slender than in the normal plant. Leaves flat, glaucous green above, thinly hairy all over when young, glabrous when mature, still more glaucous beneath and hairy all over, the terminal leaflet broadly ovate, roundish or even cordate at the base, the serrations open and furnished with one or two gland-tipped teeth on each side, the petioles villose and copiously setose. Stipules and bracts hairy on the back and setoso-ciliated. Peduncles naked. Calyx tube and fruit subglobose, resembling that of the preceding, but the sepals more setoso-ciliated. This is Mr. Robertson's *R. cæsia*, but it differs considerably from Mr. Borrer's Argyleshire plant which was figured under that name in English Botany, and which will be described afterwards. This resembles closely *R. dumetorum*, differing principally by its glaucous doubly-toothed leaves. Mr. Robertson's specimens which I have seen were gathered by the bridge between Smallwell and Axwell Park, Durham. I have gathered a similar plant on Marrick Moor, North West Yorkshire, and a form with sepals glandular all over on the back, in thickets by the Swale side, near Keld.

Digitized by Google

8. *R. canescens.* Habit of growth and prickles of the normal plant. Leaves grey-green above, tolerably firm in texture, thinly hairy all over when young, but hardly so when mature, very grey beneath and thinly hairy all over but not at all glandular, the terminal leaflet not more than ovate rounded at the base, the serrations open but not deep, furnished with two or three accessory gland-tipped teeth on each side, the petioles villose but very slightly setose, furnished with two or three hooked aciculi. Stipules and bracts hairy on the back and closely setoso-ciliated. Peduncles naked. Calyx tube broadly ovate, scarcely urceolate. Sepals hairy on the back, leaf-pointed and copiously pinnate, closely setoso-ciliated, reflexed after the petals fall. Fruit obovate or subglobose, stone hard when green, not ripening till October, by which time the sepals have fallen. This has a considerable resinous scent, and leaves much resembling those of *tomentosa* in combination with the fruit of normal *canina*. M. Dèsèglise considers it nearer to the former than the latter. Hedges near Thirsk, North East Yorkshire.

Subsection II. Subcristatæ. Leaves not glandular beneath, peduncles naked or nearly so, fruit pliable when green, ripening early in September, the sepals erecto-patent after the petals fall and usually adhering until after the fruit changes colour.

9. *R. Crepiniana, Dèsèglise.* Habit of growth and prickles of the normal plant. Leaves somewhat glaucous-green, especially beneath, glabrous on both sides, the serrations large, simple, and forward-pointing, the terminal leaflet ovate or elliptical, usually narrowed at the base, the petioles prickly, but hardly at all setose, and not at all or but slightly hairy. Stipules and bracts glabrous on the back, hardly at all setoso-ciliated. Peduncles naked, short, often hidden by the stipules and bracts. Calyx tube and fruit naked, subglobose, rather glaucous. Sepals naked on the back, leaf-pointed and copiously pinnate, hardly at all gland-ciliated, erecto-patent after the petals fall. Fruit turning scarlet early in September, most of the sepals adhering until it is fully ripe. Styles densely villose. Hedges at Kilvington, North East Yorkshire, and I have gathered similar plants, with casually aciculate peduncles, and sepals slightly glandular on the back, near Woodend, North East Yorkshire, and near Chesterholme, Northumberland.

10. *R. subcristata. R. tomentosa, γ Woods.* Habit of growth and prickles of the normal plant. Leaves somewhat glaucous-green above, more so beneath, glabrous on both sides, the serrations somewhat open and

Digitized by Google

each furnished with one or two accessory gland-tipped teeth, the terminal leaflet elliptical or ovate, a little rounded at the base, the petioles prickly, a little hairy and rather copiously setoso-ciliated. Stipules and bracts naked on the back but setoso-ciliated. Peduncles naked. Calyx tube and fruit ovate-urceolate or subglobose, the sepals somewhat tomentose towards the edges and more or less gland-ciliated. The fruit ripening and the sepals adhering just as in the preceding. Styles villose. This grows in numerous stations in North Yorkshire, and there are specimens in Mr. Watson's collection from Perthshire. As in the preceding there is a form with the sepals glandular on the back, and there is a beautiful Rose which grows at Keld, in Swaledale, with deep red flowers, slightly prickly peduncles and sepals glandular on the back, which agrees with this in other respects. The specimens of the plant of Woods which I have seen are from Loch Tay, gathered by Mr. Borrer, to whose remarks in the British Flora reference should be made. This plant has a subglobose calyx tube, and some of the peduncles a little aciculate.

11. *R. Watsoni. R. bractescens β Woods.* Leaves glabrous on the upper surface, the teeth sharper and closer than in the next, not always simple, the accessory serrations gland-tipped, somewhat hairy beneath, the terminal leaflet ovate, the petioles villose but hardly at all setose. Stipules and bracts nearly glabrous on the back, slightly setoso-ciliated, not peculiarly large nor hiding the peduncle as in the next. Peduncle and ovate-urceolate calyx tube naked. Sepals erecto-patent after the petals fall, leaf pointed and fully pinnate, glandular all over the back. These notes are taken from an authenticated specimen of the plant of Woods, from Ambleside, Westmoreland, in Mr. Robertson's collection, and there are specimens which agree with it amongst Mr. Watson's Roses, gathered by himself by the roadside between Daliwhinnie and Etrisk in Inverness-shire. It evidently connects the following and the preceding.

12. *R. coriifolia, Fries. R. sepium, Swartz, non Thuill. R. sepincola, Swartz. R. bractescens, Woods. R. frutetorum, Besser, Boreau.* Branches purple in exposure, prickles more slender and not so much curved as in the normal plant. Leaves greyish-green above, rather thickly hairy all over, paler beneath and softly hairy all over the underside, the serrations simple, spreading, shallow, as broad as deep, the terminal leaflet broadly ovate or obovate, rounded at the base, the petioles villose, but hardly at all setose, furnished with one or two small prickles. Stipules and bracts large, villose on the back, hardly at all gland-ciliated. Peduncle

Digitized by Google

short, quite naked, hidden by the bracts and stipules. Calyx tube naked, broadly ovate or subglobose, purple in exposure. Sepals leaf-pointed and copiously pinnate, erecto-patent after the petals fall, hardly at all gland-ciliated, naked on the back, but usually tomentose towards the edges. Styles villose. These notes are taken from a specimen gathered by Woods at the original locality of Ulverstone in Lake-Lancashire, and from a precisely similar example gathered by Mr. Watson, near the Castletown of Braemar, in 1844. Neither of these shews the mature fruit, but there can be, I think, no question of the identity of our plant with that of the Continent. There is an excellent Scandinavian specimen from Swartz, under his original name of *sepium*, amongst Mr. Robertson's Roses. It is included both in flower and fruit in Dèsèglise's Herbarium Rosarum, from the Canton of the Hautes Alpes, and is described in his Monograph; and I have it from Savoy, gathered both by the Abbé Puget and Dr. Fauconnet. Fries says that the fruit ripens a month before that of *canina*, and he calls the sepals persistent, but they appear to endure, as in the other plants placed in this sub-section, only until after the fruit changes colour, and to fade and fall as it ripens. It is described from Northern Germany by Von Garcke, and from the vicinity of Geneva by Reuter: and *R. crassifolia, Wallmann*, and *R. terebinthinacea, Grenier*, appear to be the same plant. A specimen gathered by Winch, near Newcastle-on-Tyne, has the large bracts and short peduncles of this, but leaves in shape, clothing, and toothing, more like those of the preceding.

13. *R. celerata.* Habit of growth and prickles of the normal plant. Leaves flat, firm but thin in texture, full green and glabrous on the upper surface, pale green and hairy on the midrib and principal veins beneath, the serratures open and as broad as deep, each furnished with two or three fine gland-tipped teeth on each side, the terminal leaflet broadly ovate and much rounded at the base, the petioles pubescent and setose, and prickly. Stipules and bracts copiously setoso-ciliated, naked or nearly so on the back. Peduncles naked. Calyx tube and fruit subglobose, the latter turning scarlet very early in September, the sepals erecto-patent after the petals fall, leaf-pointed and copiously pinnate, somewhat tomentose towards the edges, copiously setoso-ciliated and mostly lasting until after the fruit changes colour. Styles hairy. Thickets in Holywell dene, Northumberland. This agrees with *tomentella* in the shape of the leaves, but differs in the fruit.

Subsection III. Hispidæ. Leaves not glandular beneath but the

Digitized by Google

peduncles and often the calyx tube also more or less densely aciculate and setose. (For a notice of forms with casually aciculate peduncles see under Nos. 3, 9 and 10.)

14. *R. Andevagensis, Bast. R. canina γ glandulifera, Woods.* Leaves firm in texture, glabrous on both sides, the serratures sharp, connivent and simple, the terminal leaflet broadly ovate and somewhat rounded at the base, the petioles not hairy and only very slightly setose and prickly. Stipules and bracts glabrous on the back, slightly gland-ciliated. Peduncles and base of calyx tube rather closely aciculate and setose, the latter ovate urceolate or subglobose, the sepals pinnate and leaf pointed, glandular and prickly on the back, but hardly at all gland-ciliated. Sepals reflexed after the petals fall. Styles villose. The specimens which I have seen of this are from the Pass of Lanrick, gathered by Mr. Borrer, and from Braemar, gathered by Mr. Watson. Mr. Borrer's plant has the stipules, bracts, peduncles and calyx tube, deeply tinged with red. The continental *Andevagensis* has the sepals usually naked on the back.

15. *R. verticillacantha, Merat?* Habit of growth and prickles of the normal plant. Leaves firm in texture, bright green above, paler beneath, glabrous on both sides, the serrations sharp but moderately open, and each furnished with one or two gland-tipped teeth, the terminal leaflet ovate a little rounded at the base, the petioles densely setose but only slightly hairy and furnished with two or three hooked prickles. Stipules and bracts naked on the back but closely setoso-ciliated. Peduncles densely aciculate and setose, usually shorter than the bracts. Fruit elliptical, naked, not ripening till October, the sepals somewhat glandular on the back and densely setoso-ciliated, deciduous by the time the fruit changes colour. Styles slightly hairy. These notes of character are taken from a plant of which Mr. Bromwich has sent a supply of specimens from Myton, Warwickshire to the Botanical Exchange Club. It agrees very well with my specimens, and the description of *R. verticillacantha*, but in the latter the prickles are said to be arranged "*en spire autour de la tige.*" There are similar plants amongst Mr. Watson's Roses from Twycross, Leicestershire, (Rev. A. Bloxam) and Bridgewater, Somerset, (T. Clark), the latter with a densely prickly calyx tube, sepals densely glandular on the back and more hairy styles.

16. *R. cæsia, Smith.* Leaves glaucous-green and glabrous upon the upper surface, still more glaucous and hairy principally upon the

Digitized by Google

veins beneath, the serrations sharp, connivent, simple, or slightly double, the terminal leaflet ovate or elliptical, narrowed or slightly rounded at the base, the petioles prickly and villose, and copiously setose. Bracts and stipules slightly hairy on the back and copiously gland-ciliated. Peduncle rather closely aciculate and setose. Calyx tube ovate-urceolate, naked, purplish with a glaucous bloom. Sepals leaf-pointed but only slightly pinnate, glandular all over the back and hairy towards the edges. These notes are taken from the original plant figured in English Botany, which was gathered by Mr. Borrer, near Taynuilt, in Argyleshire. A plant gathered by the Rev. W. M. Hind, near Stapenhill, Derbyshire, differs by having the leaves slightly hairy on the upper surface, the calyx tube aciculate as well as the sepals, which latter are more compound than in Mr. Borrer's plant. This and the *tomentosa var. incana* of Woods, which I have not seen, represent Dèsèglise's subsection E, and the two former his subsection C of the *Caninæ*, the plants belonging to which seem to be much more plentiful in France than with us.

Subsection IV. Subrubiginosæ. Leaves slightly glandular beneath, at any rate on the midrib and secondary veins; peduncles naked or aciculate, the fruit various in character. The plants of this subsection are classed by Dèsèglise with the *Rubiginosæ*.

17. *R. vinacea.* Habit of growth and prickles of the normal plant. Leaves somewhat glaucous green, firm in texture, hardly flat, quite glabrous above, paler beneath, but not at all hairy, glandular on the midrib and principal veins, the veins prominent, the teeth sharp but moderately open, each furnished with one or two fine gland-tipped serrations, the terminal leaflet narrowly ovate, hardly rounded at the base, the petioles not hairy but prickly and densely setose. Stipules and bracts naked or slightly glandular on the back, densely setoso-ciliated. Peduncles and calyx tube naked, the latter subglobose, the sepals reflexed after the petals fall, leaf-pointed but not much pinnate, slightly glandular on the back and copiously setoso-ciliated. Fruit subglobose, not ripening till October, by which time the sepals have fallen. Styles hairy. Veins of the leaves, petioles, stipules, and bracts, all deeply tinged with red. Hedges at Thirsk, North Yorkshire.

18. *R. arvatica, Puget.* Habit of growth and prickles of the normal plant. Leaves firm in texture, hardly flat, glabrous above, paler beneath, and hairy on the midrib, and glandular on the midrib and secondary veins, the serrations moderately sharp, open, and numerous,

Digitized by Google

and each furnished with two or three gland-tipped teeth, the terminal leaflet narrowly ovate or elliptical, narrowed at the base, the petioles both prickly and also pubescent and setose. Stipules and bracts hardly hairy on the back, but some of the lower ones a little glandular, all closely setoso-ciliated. Peduncles quite naked. Calyx tube ovate or elliptical, the sepals copiously pinnate and leaf-pointed, closely setoso-ciliated and slightly glandular on the back, spreading but not fully reflexed after the petals fall. Fruit stone-hard when green, broadly ovate or subglobose, not turning scarlet till the beginning of October, by which time the sepals have fallen. Styles glabrous or only very slightly hairy. Hedges at Sowerby and Kilvington, North Yorkshire, and there is a specimen from Newcastle in Mr. Robertson's collection, marked as a connecting link between *canina* and *inodora*. This is placed by M. Dèsèglise amongst the *Rubiginosæ* near *R. sepium*, which it resembles in the styles and shape of the leaves.

19. *R. tomentella, Leman.* Branches unusually lithe and flexuose and prickles strongly hooked. Leaves flat, firm in texture, thinly hairy all over above when young, paler and thinly hairy all over beneath, but only very slightly glandular, the serrations open, spreading, triangular cuspidate, as broad as deep, and each furnished with three or four accessory gland-tipped teeth, the terminal leaflet broadly ovate, much rounded at the base and sometimes almost as broad as long, the petioles hairy and setose, and furnished with three or four much hooked aciculi. Stipules and bracts slightly hairy on the back, copiously setoso-ciliated. Peduncles quite naked. Calyx tube naked, subglobose, the petals pale, the sepals leaf-pointed and fully pinnate, slightly hairy but not all glandular on the back, copiously setoso-ciliated, reflexed after the petals fall. Fruit subglobose, not turning scarlet till October, by which time the sepals have fallen. Styles hairy, somewhat protruded. This I have seen in many places in North Yorkshire, and have it also from Warwickshire. *R obtusifolia, Desv. R. leucantha, Bast.* which I have not seen from Britain, is intermediate between this and No. 1.

20. *R. Bakeri, Dèsèglise, Syme.* Stems six or eight feet high, scarcely at all arching, purple where exposed, branches stiff and spreading, and prickles more slender and less curved than in the normal plant. Leaves full green, moderately firm in texture, covered all over with a thin coating of soft silky hairs above, paler and hairy all over beneath, with a scattering of small green viscous glands, the serrations open and many times toothed with

Digitized by Google

gland-tipped teeth, the terminal leaflet ovate or obovate, either rounded at the base or narrowed from below the middle, the petioles both prickly and rather pubescent, and copiously setose. Stipules and bracts both hairy and somewhat glandular on the back, copiously setoso-ciliated. Peduncles sometimes naked, sometimes with a few weak prickles and setæ, short and often hidden by the bracts and stipules. Calyx tube naked, ovate or elliptical urceolate, the petals deeper coloured and smaller than in the type, and wavy towards the borders. Sepals one or two simple, the others copiously pinnate and leaf-pointed, all slightly glandular on the back, hairy towards the edges and copiously setoso-ciliated, erecto-patent after the petals fall. Fruit ovate or elliptical, ripening early in September, most of the sepals adhering until after it changes colour. Styles villose. Hedges at Sowerby, N. E. Yorkshire. This in many points comes near to *R. Borreri*, but the leaves are different in shape and texture, the underside very slightly glandular, the peduncles hardly at all aciculate and the sepals are subpersistent.

21. *R. Blondæana, Ripart. R. trachyphylla, Boreau in part.* Stems dark purple and glaucous where exposed, branches more divaricated than in the normal plant, and the prickles less robust and less curved. Leaves somewhat glaucous-green above, decidedly glaucous beneath, glabrous on both sides, but glandular on the midrib, and a little over the surface beneath, the serrations moderately sharp and open, each with two or three fine gland-tipped teeth, the terminal leaflet typically ovate or rather obovate, the petioles prickly and densely setose but not hairy. Stipules and bracts not hairy but a little glandular on the back, copiously setoso-ciliated. Peduncles slightly aciculate and setose. Calyx tube naked, subglobose, the sepals leaf-pointed and copiously pinnate, glandular all over the back, erecto-patent after the petals fall. Fruit obovate or subglobose, turning scarlet early in September, by which time some of the sepals have fallen, but others remain. Styles rather thickly hairy. Hedge at Kilvington, North-east Yorkshire, and I have gathered a very similar plant, but with an aciculate calyx tube, both in Perthshire and Aberdeenshire. This and the last agree with Subsection II in the character of the fruit, but Nos. 17, 18, and 19 with Subsection I.

Digitized by Google

NOTES ON THE ROTIFERA.

By J. Cash, Warrington.

Among the many sources of enjoyment which the student of Natural History has at his command, there are few equal to—certainly none surpassing—that of searching out and forming an acquaintance with the habits, &c., of the denizens of our pools and ditches. The expense of microscopes, which formerly was a great obstacle to the popularity of this pursuit, is now happily, in a great measure, removed. Instruments are sold at a moderate price which are sufficient for a very large proportion of microscopical investigations. In the case of the Rotifera, a power of from one to three hundred diameters is ample. If, however, the student is desirous of studying the peculiarities of structure—especially of the more minute species—he will require a considerably higher power; but it is astonishing what an amount of work can be done with an instrument costing not more than three or five guineas.

In gathering Rotifera the student should provide himself with half-a-dozen, or more, small wide-mouthed glass bottles, and should search out those ponds where there is a good supply of the finer leaved water plants, such as *Ranunculus aquatilis*, *Myriophyllum verticillatum*, *Hottonia palustris*, &c.; although plants of more robust growth are not to be entirely overlooked. I have found some of the rarest species on the leaf-stems of *Hydrocharis*. When they occur in this situation, however, they cannot be examined under the microscope. Many good things are to be found upon *Anacharis;* I have seen scores of Melicerta cases upon a single stem. A small portion of the plant should be removed carefully from its place of growth and transferred to a bottle previously filled with water. By the aid of a pocket lens the value of the collection may be easily ascertained—indeed this may be often settled with the naked eye, for some of the larger Rotifera are distinctly visible without any microscopic aid whatever. Only a few days ago there appeared an uncommonly fine Stephanoceros in my aquarium, which, placed in a favourable position with regard to the light, I could distinctly see at a distance of nearly two yards.

It may not be out of place here to observe that the aquarium is a most valuable—indeed an indispensable—adjunct to the microscope, and the student of infusoria should not be without one on any account. A

Digitized by Google

rectangular tank, substantially built with plate glass sides, is by far the best, but for all ordinary purposes a common glass jar, such as confectioners preserve their sweets in, will be found sufficient.

I propose to give two or three short papers upon the Rotifera, and, on account of its great beauty, and reported rarity, I shall give the precedence to—

STEPHANOCEROS EICHHORNII. *(Ehr.)* The genus Stephanoceros—of which there is but one established species—possesses the following characters:—"Frontal lobes long, slender, erect, convergent; ciliary setæ set around them in whorls. Jaws each of three teeth, connected by a web."

S. Eichhornii (the Crown Animalcule) which Mr. Gosse describes as the largest, rarest, and most elegant species of the class, seems to be tolerably plentiful about Warrington, although it has been found as yet, only in one place—that is, my aquarium. This fact will serve as an illustration of the value of aquaria to microscopical students. The creature had, of course, been introduced with water plants from some of the ponds in the neighbourhood, but all my attempts to discover the particular spot from which it had come have proved futile. I first discovered it in the summer of 1862. One dull, rainy afternoon I had my microscope before me, and made a few dips into my aquarium just by way of passing a leisure hour: I was engaged in the examination of some threads of Conferva, when to my delight and astonishment the ciliated tentacles of a Stephanoceros shot across the field. Any one who has found a rare object, and one which he has long wished to see may guess what pleasure I felt at the discovery. In the course of a few days others appeared; and on making a careful examination I found that the plants in my tank were literally swarming with them. The glass sides, too, were covered with scores of these beautiful creatures. They continued with me throughout the winter, and I had no difficulty, at any time, in finding as many as I wanted for my own amusement and study, and for shewing to friends. But the time came when my tank required to be emptied, and not being sufficiently careful of the Stephanoceri, I found, to my regret, that they had all disappeared. Lately, they again presented themselves on the introduction of fresh plants; and I have before me, as I write, a beautiful full-grown specimen, attached to a bit of fine-leaved *Potamogeton*, and—as luck will have it—two infant Stephanoceri in close proximity. The young ones, which seem to have only just settled down,

Digitized by Google

and can scarcely be said to have begun life in earnest, have not yet developed their distinguishing crowns, but, in one at least, the action of the jaws is distinctly perceptible. The adult specimen has a most beautiful crown, consisting of five arms "which rise erect from, and converge to, a rounded point, after bulging outwards so as to present the figure of a tall crown or mitre (whence the generic name)—but the points do not actually meet." The case in which the creature dwells is composed of a gelatinous substance, and is quite transparent. The irregular outline alone is visible. In the opinion of Mr. Gosse there is no organic connection between the animal and its case, after the latter has been once formed. During inhabitation the upper margin is turned inward, and when the animal suddenly and strongly contracts itself, the top of the case is somewhat drawn in after it. But this, says that gentleman, is not the result of any adhesion of the margin to the animal, but simply that of the action of the water rushing into the vacuum suddenly produced by the downward retraction of the body and carrying in with it the soft and flexible margin of the case. I do not like expressing an opinion adverse to perhaps the greatest living authority, but it appears to me that there is a sort of mechanical connection between the neck of the Stephanoceros and the upper part of its case. The sudden contraction of the animal would undoubtedly produce a vacuum which would become instantly filled with water; but I think, if there was nothing to prevent it, the case, owing to its flexibility, would return to its original form. I find that, on the retreat of the animal, one or two of the outer folds of the case are drawn into the cavity, and, instead of returning, remain there until the animal again unfolds its crown. At times the creature seems sulky, and will on no account venture above the top of its case. It will retreat to the bottom, and either remain stationary or make occasional upward movements as if intending to come forth. Every such movement makes the drawn-in folds of the case approach more and more their original position, whilst every downward jerk brings them more within the case, and there they remain whilst the animal is still. I think the fact of the space being occupied by water would not account for this; nor, in my opinion would these modifications of the case so closely correspond to the movements of the animal within, unless there was such a connection as I have suggested.

It is interesting to watch the creature feed. If a little monad happens to get within the tentacles woe betide him! As if possessing a presentiment of his fate he flies about in the wildest manner until, drawn

Digitized by Google

within the mouth-funnel, down he goes at a gulp. The digestive process may be distinctly traced.

Once I had the gratification of witnessing the birth of a young Stephanoceros. The parent certainly could not be congratulated upon its offspring's likeness to itself. The little fellow, after leaving the egg state, assumed an elongated form, tapering towards the tail, and possessing a wreath of cilia at the head in active motion; but no trace of a crown. It was fixed between the body of the parent and the inner wall of her case; and fought its way upward until, having reached the top of the case, it got entirely free and swam away. Had it been in the aquarium instead of in my live-box, it would in less than half-an-hour have settled upon the leaf of some plant; and in little more than twenty-four hours it would have assumed the true form of the Stephanoceros.

There is much in the economy of this creature well worthy of investigation. With reference to its supposed rarity I am inclined to think there is too much said. Mr. Gosse mentions the water in front of Kensington Palace, and a pool at Highgate, as the only stations in Britain where it has been found. Eichhorn, he says, found it at Dantzig exactly a century ago, and figured it in 1775. Ehrenberg rediscovered it near Berlin in 1831, and afterwards saw it on several occasions. Weisse met with it once at St. Petersburg. I believe, if careful search were made, it would be found much more widely distributed than it is reported to be in this country.

Observations.

Notes on the Kingfisher.

The Kingfisher *(Alcedo ispida)* is one of my especial favourites. Often when out on a fishing excursion I have noticed this beautiful little bird capture its finny prey by quietly perching on some branch over-hanging the river, and then waiting, with dogged perseverance, for the moment in which to make its plunge. At length some unsuspecting fish rises to take a floating insect, and then, quick as lightning, down descends the glittering bird; the water is scarcely moved by its plunge; the next moment it reappears with its victim which it bears to its resting-place, where, striking the head of its prey smartly several times against the branch, ends its struggles and swallows it whole. This bird seems to have no companion but its mate, and they labour with unabated diligence for the support of their young. The

Digitized by Google

usual place selected for incubation is the old hole of the water rat; at the end of this burrow is a little chamber, where, without building any nest, it deposits its eggs, from five to seven in number, of a clean pinky white. While the work of incubation is going on the female is supplied with food by her mate; and from the fact that the Kingfisher, like the owl, recasts the indigestible parts of its food, has arisen the absurd supposition that the nest is composed of the pellets of fish bones. The young soon acquire the plumage of the old birds, and when able to leave their abode follow their parents, and, resting on the branch of a tree in some lonely part of the river, tax the industry of the parent birds.—CHARLES DENNY, Kelvedon.

The Pied Flycatcher (Muscicapa atricapilla, Lin.) at Halifax.—This bird is considered rare in this neighbourhood. I have to record the occurrence of two specimens which have been shot this season, one by myself in Warley Clough, the other was sent me for preservation. Both males.—JOSEPH SUTCLIFFE, Warley, near Halifax, June 28th, 1864.

Monstrosity of Planorbis marginatus.—On May 16th, I met with a spiral monstrosity of *Planorbis marginatus*. It has four whorls: the two first are coiled in the normal way, the other two are spiral. Length quarter of an inch; width three-sixteenths. It occurred in company with *P. vortex*.—JAMES BEEVERS, 24, Chorley-street, Wellington-street, Leeds. (This is not unusual: the tendency to distortion is common to the genus.—EDS.)

A DAY AT LLANGOLLEN IN JUNE.

June 10.—Reached here at seven p.m., started for the "Gleusiegs" rocks, sugared the lower ground before ascending the mountain. Reached the ledges I had previously determined to sugar at dusk, and went to work forthwith. Night, all sorts—fine, wet, windy, and calm, within the two hours, I remained perched on the ledges, sugared about one mile of ground and went three times over the sugar. The best insect captured was *Agrotis cinerea*. On my return to the lower ground I found *Aplecta tincta*, *Rusina tenebrosa*, *Xylophasia hepatica*, amongst other abundant species on my sugar, and was glad to observe my old coleopterous friend *Lemera podagrarœ*, taking sweets here in June as freely as I had at Conway seen it sipping supper from ivy bloom in September. *Lampyris noctiluca* was just lighting her lamp on the mountain slopes to guide her lovers to her bower of moss, and several of these "roving blades" met a pill-box grave as they came to see what strange queen of light reclined in my lanthorn. Re-

Digitized by Google

turning by a lane in which I had observed the Honey Dew on a hedge under a Sycamore tree, I passed the light upon the hedge and here the moths kept up their revels. The genus *Agrotis* seemed to have assembled by special appointment to meet a few friends and strangers, for almost all orders were represented, the *Stegoptera* being rather strongly so; and it was evident by the way that some *Hemiptera* were enjoying themselves that they liked sweets quite as well as some of their relations like blood.

Next morning early I was in the woods; *Œcophora grandis* rewarded me by gently passing into my net and thence to my satchel; the sun getting overcast, rain and wind followed; and now to work for *Trochilium scoliæformis* in pupa; pursuing this pleasure until I was tired, I packed the results carefully away in moss, and took to other game. The sun regained the ascendency, and out came the beautiful Longhorn *Adela Degeerella*, and the more beautiful *Harpella Geoffrella* which though abundant in the South, rarely glads the eyes of a Northern Entomologist. The best insect taken by beating was *Œcophora subaquilea*, and thus the day passed, now a moth, then a larva, pupa, or beetle, but always something, until a kind of gnawing at the stomach reminded me that if I would sugar at night, I must eat soon, and so I turned towards Llangollen for food and my sugar. The night proved very unfavourable, but common moths were more abundant on sugar then the night before; the rain having washed the Honey Dew away. The species seen, however, were identical with those seen on the previous night, minus *A. cinerea;* in fact it was impossible to keep a lanthorn lighted and hold an umbrella on the ledges where I took it on such a rough night.

The results of the journey being on the whole better than my expectations, I left for home next morning, without regret, especially as there was a heavy storm brewing over the Merionethshire mountains to the south-west.—C. S. Gregson, June 14th, 1864.

Diving Water Spiders *(Argyroneta aquatica, Walckenaer.)*—Three years ago I collected Water Spiders from a place called Frost Dam, between Methley and Normanton, and put them into a glass jar with some Anacharis, and kept them till the following spring, but they dwindled away and died in April, I think owing to my not changing the water oftener. I collected others at the same place on the 15th of October, 1863, and have kept them up to the present time. These I have observed spinning silken cells or

Digitized by Google

bags in the water, about the size of a marble, and of a very pale yellow colour, adhering to the Anacharis; in these bags they have deposited their eggs, from which I hope to have a good supply of young ones diving out by the middle of July. The Diving Spider may also be found at Knottingley near Pontefract, living in its diving-bell, which shines through the water like a ball of silver. Their singular economy was first described by Clerck, in the *Aranei Suecici*, Stockholm, 1757, also by De Geer, *Mem. des Insectes*, cap. 7, page 312. "These Spiders," says De Geer, "spin in the water a cell of strong closely woven white silk, in the form of half the shell of a pigeon's egg, or like a diving-bell. This is sometimes left partly above the water, but at others is entirely submersed, and is always attached to the objects near it by a great number of irregular threads." Clerck says "the shining appearance proceeds either from an inflated globule surrounding the abdomen, or from the space between the body and the water." The Spider when wishing to inhale the air rises to the surface with its body still submerged, and only the lower portion of the abdomen rising to the surface. It comes up for air several times in an hour, though I have good reason to suppose it can continue without for several days together.—J. Blackburn, Leeds.

Correspondence.

Royal Horticultural Society's Prizes.

(To the Editors of the Naturalist.)

Gentlemen,—I have been rather amused by the article in your first number on the prizes proposed by the Royal Horticultural Society, especially as I had a hand in the protest sent to the Society against them. It seemed to me and many other botanists that such prizes were likely to endanger the existence of the rarer or more local plants, without in any real way promoting the study of scientific botany. It was clear to me that they could not be of any real use to the class for whose benefit they were apparently intended; and it therefore, gave me much pleasure to find that the Society saw fit to reconsider them.

Prizes given for making collections of specimens to be estimated by the number of species contained in them are in my opinion useless, for they only stimulate the habit of accumalating objects without their study.

If prizes are offered, I think that they should be for such collections as show a real knowledge of a small number of plants. They should consist of dissections, showing the structure, either of the perfect plant or of its progressive development. Take for instance some genus and illustrate the peculiarities and differences of the species contained in

Digitized by Google

it: the generic character, and the specific characters of the species. Thus a true knowledge of the plants would be obtained, and the powers of observation and discrimination improved. If our local societies and clubs would do this they would make botanists not simply collectors.

W. G. seems to fear that one object of the Horticultural Society's Prizes was to sell the "three or four books mentioned." Now it happens that the authors of the three most prominent British Floras all protested against the prizes, viz.:—Sir J. W. Hooker, Dr. Walker Arnott, Mr. Bentham, and myself. I do not recollect if any other books were "mentioned," and have not the circular of the Society at hand, but if others were named it is probable that their author's names will also be found amongst the remonstrants. We do not insert many, if any, exact localities in our books, and so could not require or use the information which your correspondent suspects was intended to be provided for our future editions. But I think that your correspondent's paper is valuable and well timed; although he is mistaken in this one respect. The suggestion in his last paragraph is excellent, and will I hope he acted upon.

I am, Gentlemen,
Obediently yours,
CHARLES C. BABINGTON.

Cambridge, 8th July, 1864.

Notes and Queries.

Relaxing Coleoptera.—In reply to the query on page 80, if W. H. C. when collecting Coleoptera will put them in a bottle containing bruised Laurel leaves, his captures will be dead in a few minutes, and after remaining in the bottle two or three days will be quite relaxed.—E. GRAHAM, 15, Victoria Street, Blackpool.

Exchange.

Clostera anachoreta.—I have larvæ of this species in duplicate, and shall be glad to send a few to any one who requires them. Applicants must pay postage.—WM. PORTEUS, 17, Dean St., Pellon Lane, Halifax.

Original Articles.

AN EXCURSION TO SHERWOOD FOREST.

BY B. BRADLEY.

Sherwood Forest. This once thickly wooded tract, of some twenty miles in length, and from five to seven in breadth, was, as stated by Gilpin in his "Forest Scenery," the frequent scene of Royal amusements;

Digitized by Google

Mansfield being, on these occasions, the general residence of the Court. It was on one of these visits, that Henry, became acquainted with the Miller of famous memory—Sir John Cockle! as recorded in "Percy's Reliques" and in Dodsley's Dramatic Entertainment, entitled the "King and the Miller of Mansfield." Whatever amusement this eccentric miller may have afforded the king and his suite, certain it is, that some other attractions must have existed. Would it be mere surmise to suppose that the vast extent of forest—the deer, and the sport, were not the chief attractions in those days of yore, that Royal visits should have been so frequent? The Sherwood of 1864, notwithstanding that the scissors of cultivation have clipped off some 80,000 acres, still presents attractions so diversified, and is a field of such vast richness to the naturalist, that he could scarcely err in designating it "Nature's unlimited storehouse."

To the botanical tourist are presented most remarkable objects of curiosity. Amongst the many large and venerable trees, the most remarkable are, the "Greendale Oak," which is at least 700 years old, and has a coach road cut through it; the "Duke's Walking Stick," 111 feet high, and 11 tons in weight; the "Two Porters," 38 and 34 feet in circumference; and the "Seven Sisters," all of which are situated in Welbeck Park.

Birkland, the property of the Duke of Portland, and Bilhaugh, belonging to Earl Manvers, two ancient woods three and half miles in length, and about half a mile distant from the village of Edwinstowe, is that part of Sherwood referred to in the following remarks. Many large and venerable oaks are to be seen here, in every stage of perfection and decay. It appears (as recorded in a local work,) that in cutting down some timber at the close of the last century, letters were found cut or stamped in the body of the trees, denoting the king's reign in which they were marked. This is supposed to have been done by the bark being cut off and the letters cut in; after which, the next year's wood grew over the inscription without adhering where the bark had been removed. The cyphers when found, were of James I., of William and Mary, and one of King John. The latter was eighteen inches within the tree, and more than a foot from the centre; so that the tree must have been planted above a hundred years before John's reign, and when it was cut down in 1791, must have been about 706 years old!

We, a party of four, commenced our journey by taking train to Worksop. We noticed, after leaving Sheffield, *Primula veris* in abundance

Digitized by Google

on the sides of the railway cutting. Upon arriving at Worksop we had a pedestrian journey before us of ten miles. This, considering the very hot day, and having to carry luggage required for two or three days sojourn, not forgetting boxes and other miscellanea was, to say the least of it, an unwise arrangement. On proceeding along the Mansfield road we noticed *Ballota nigra*, growing profusely in the hedge to the height of upwards of two feet, *Viola odorata*, (in fruit,) and *Geranium dissectum*. On the Ollerton road we found *Arabis hirsuta*. A few yards from the road side we passed a sand pit completely perforated with holes made by the Sand Martin *(Hirundo riparia)*, and although some men were busily at work in the same pit, the martins were plying to and fro like bees to their hive. The heat had become oppressive, perspiration had long trickled down our faces; need we say, gentle naturalist, after these five miles walking—how we welcomed the rest and refreshments afforded by a call at the "Rising Sun." On resuming our journey, birds' nests became quite common. A Lesser Redpole was upon its nest, the faithful one was very unwilling to leave, and it immediately became a prisoner in one of the nets; the nest contained five eggs. A few paces further, and only one yard and a half distant from the marks of the wheels upon the road, we found the nest of a Pheasant *(Phasianus colchicus)* containing four eggs. The insect world was very active, and large quantities of larvæ were gathered from the hedges. We soon came to the picturesque village of Budby—with its castle—its woodland scenery and small river abounding with shoals of trout. Each cottage in this lovely spot is the very picture of "a home retreat." A few yards to the left, over the bridge, is a most beautiful spring of cold clear water; near to which were growing *Cardamine amara*, *Stellaria nemorum*, *Carex aquatilis*, and *Carex panicea*. On the slope, basking in the sun, we noticed a very fine Adder, *(Vipera berus)*, which narrowly escaped capture, by suddenly giving a twist and curling into the hedge. We picked up a specimen of the Glow-worm *(Lampyris noctiluca)*, a rather unusual occurrence in the afternoon, in the early part of May. Coming to the forest, we took round by the "Old Major" oak, a venerable tree, 28 feet at its narrowest girth. The ever keen and vigilant eye of one of our party, instantly detected upon its trunk, a beautiful specimen of *Tephrosia crepuscularia*. An old man, who daily visits this tree, will open out tales of wonder about the tree in question, and its associations, a few coppers being the only return expected. When asked if any collectors came to

Digitized by Google

the tree? he naively observed, that persons sometimes came pottering at the roots as he thought for hedge-hogs! We now wound round to the village of Edwinstowe, where at the "Old Jug and Glass" a comfortable private room had been prepared for us.

Having dined, we went to the forest. Amongst the insects we captured, may be noted the following:—*Cœnonympha pamphilus; Vanessa urticæ; Chrysophanus phlæas; Phytometra œnea; Tephrosia punctulata; Ephyra punctaria; Lozogramma petraria.*

At dusk the sugar bait was resorted to, but without any success. This failure may perhaps be accounted for by our visit being a fortnight too early, and the large quantity of bloom upon many of the trees.

Our labours for this day being over, we sat down upon the velvety sward, and abandoned ourselves to the indulgence of feelings, which the almost primeval nature of things around inspired—feeling the deep impression of a charm and hidden meaning in this grandeur, far removed from all things terrestrial! Our "elysium" was doomed to be of short duration, for the hooting of the Barn Owl (*Strix flammea*) not very politely intruded itself; it was shortly joined by the Shorteared Owl (*Strix brachyotus*) and Longeared Owl (*Strix otus*); which together with the interminable duet of the Night-jar (*Caprimulgus europœus*) produced a concert of strange sounds, not by any means familiar to the ears of persons resident in manufacturing towns.

The morning broke in all its splendour—all nature was lovely—to rejoice with her smiling brightness was but an instinctive act. A few paces and we were greeted with the shrill notes of the Swift (*Cypselus apus*). In our walk we noticed of the warblers, the Redstart (*Sylvia phœnicurus*), Black Cap (*S. atricapilla*), Garden Warbler (*S. hortensis*), White Throat (*S. cinerea*), Wood Wren (*S. sibilatrix*), Willow Wren (*S. trochilus*), Chiffchaff (*S. rufa*). The songs of these warblers were being continually intermixed with the notes of the Great Titmouse (*Parus major*), Blue Titmouse (*P. cæruleus*), Cole Titmouse (*P. ater*), the Stonechat (*Sylvia rubicola*), Whinchat (*S. rubetra*), with the occasional notes of the Wryneck (*Yunx torquilla*), and the Green Woodpecker (*Picus viridis*), Spotted Woodpecker (*P. major*), and Stock Dove (*Columba œnas*). To the contemplative naturalist—these, with a whole host of the feathered tribe, swelling the majestic chorus, with the ever hovering voice of the Cuckoo (*Cuculus canorus*) as if conducting the whole,—produces an effect indescribably grand.

Digitized by Google

Next day, work began in earnest. The beating for larvæ and Beetles was successful beyond our most sanguine expectations. Upwards of eighty species of Coleoptera were collected. The following are a portion which have been named:—*Scaphidium quadrimaculatum; Lampyris noctiluca; Badister bipustulatus; Haltica Nemorum; Thyamis femoralis; Onthophagus nuchicornis; O. ovatus; Ctenicerus pectinicornis; Elater sanguineus; Byturus tomentosus; Apion violaceum; A. humile; A. Ervi; Epurea obscura.*

It may be worthy of note that a nest of the Wild Duck *(Anas boschas)*, containing nine eggs, was found built up in the trunk of an old oak, four or five yards from the ground, and at least one mile from any water. A specimen of the Adder *(Vipera berus)* was captured alive, and secured within a bottle.

In the evening we took a stroll down to Ollerton Corner, thinking we might hear the Nightingale, but found it was too early for its appearance. We were repaid by many incidents in a delightful walk, and on our return at 11 o'clock p.m., the Grasshopper Warbler (*Sylvia locustella*) and the Sedge Warbler (*S. Phragmitis*) were in full song.

Next morning we packed up our luggage, and sent it off to Worksop. Walking leisurely after, we took train, and arrived home quite safely, after a most delightful and interesting excursion.

NOTES ON THE DISTINGUISHING POINTS IN THE SEXES OF THE KINGFISHER AND SHORTEARED OWL.

By S. P. Saville, Esq., M.B.N.U., &c., &c.,
Private Naturalist to H.R.H. the Prince of Wales.

"Infinite is thy mercy, and in wisdom hast thou made them all."

I am aware the subject of which I purpose to treat, is a most tenacious one, and its many failings must, therefore, be read with leniency, taking the will for the deed. I am convinced of the pure truth of my assertions, from the minute and careful examination of many examples, and repeated observation of freshly killed birds, extending over some years, nor have I set down these points or distinct features without first thoroughly examining the truth of what I now pen, well knowing what a difficult task I had before me (yet not difficult when once ascertained). There are

Digitized by Google

visible points of material difference in the sexes of every species of bird and quadruped that exist upon the face of this terrestrial ball of clay; it is these not very easily distinguished characteristics, in some species, I wish to bring before the readers of "The Naturalist;" why one species should have such readily distinguishing marks of identity, as to sex, whilst others (even of the same genus) at the same time are almost entirely beyond the penetrating vision of observant man. I have no backwardness in averring that the all-wise and omniscient hand of their Creator, has a particular design in thus giving to some as it were a glaring stamp of identity in this matter, and leaving others scarcely to be recognised; this part of Nature's economy I leave for other hands than mine to solve, and proceed with my subject.

The first species named in my notes is that beautiful and indigenous bird, *Alcedo ispida*. (I cannot refrain from here expressing my grief at reading the attempts now being made to kill this bird, upon almost all our waters, from the cause as their persecutors state that they destroy so many young fish.)—*Vide Field.** I would say oh Angler—not woodman—spare that bird. The Kingfisher is a particular favourite with me, I love to see him dart along the meandering stream, or sit poised and stately upon some favourite over-hanging twig or stump. It was this partiality, in the first instance, led me to practically discover as much as I was able of its history, habits, and more especially the

* The article to which our correspondent refers, is one by Mr. Frank Buckland, which appeared in a recent number of the *Field*. We copy it *verbatim*:—"The most destructive things in the world to young fish are Kingfishers (?) Not long ago, I was staying at a friend's house, near Canterbury. He had hatched a great number of fish, from eggs I had given last year, and turned them out into a pond in his garden. The fish, however, kept continually disappearing. The cause could in no way be ascertained till at last it was found out that some Kingfishers had discovered the whereabouts of the little fish, and were picking them out fast, one after the other, as children do solitary plums out of a school cake. It is, however, a sad thing for the Kingfisher that they have become fashionable among ladies; their skins are therefore very valuable to adorn ladies' hats. A day or two ago I met a man in a punt on the Thames, whose special mission was to destroy Kingfishers. He had one, a beauty, and had two shots at others. They were going, he told me, to London, to be made into ornaments for ladies' hats. It seems a very great pity to destroy these little birds; but ladies' fashions rule the day. They have already, by making them fashionable, nearly utterly destroyed the black monkey on the West Coast of Africa. The skins of the Himalayan Pheasant are getting very dear. Sea Otters have retired to the Arctic Circle, and now the Kingfisher's turn has come: and if this continues, the Kingfisher will become shortly a rare British bird." We trust our lady readers will take the hint, and refrain from using those adornments which never appear so beautiful as when worn by their natural owners.—EDS.

Digitized by Google

feature pourtraying at a glance the distinction of the sexes. This feature is in the lower mandible. The female having at all ages the lower half of the beak light brick-red and somewhat longer,—its entire plumage being at the same time less intense blue, and more inclined to green in the shade while the male has a uniform dark horn-coloured beak, both the upper and lower mandibles, and decidedly shorter than that of the female. If any one will take the trouble to follow me in this, it will be found a never failing mark of identity in this species.

The Shorteared Owl is an occasional visitant to our fens. I have had every opportunity afforded me of making examinations of a great number of fresh killed examples, and minute inspection of them has rewarded me with a perfect triumph in respect of ascertaining the sexes by external features. The only mark outwardly is the very observable rich dark colouring of the female, and thicker streaks of black pervading its entire plumage, whilst the male is very much lighter in colour, and only faintly marked, (upon the heart particularly,) and is less rich in general colouring. The face of the male is also much paler. I have never yet seen this species properly figured or delineated; the smaller quill feathers are in every case represented as laying one over another as in the Hawk, while this species never reposes but with these feathers brought down—overhanging the greater quills—in a slanting direction. This is an observable feature peculiar to the species, and in nearly every case this Owl is figured sitting upon a tree, which is rarely, if ever, its true habit, as it perches, or rests upon the ground, except in rare cases. I had very serious doubts, some little time since, if it ever perched at all; but through the extreme kindness of my friends who have all most courteously rendered me their experience, I have decided that this one usually reposes upon the ground, but upon rare occasions is found to perch. The turnip field is an especial favourite with this bird. I desire especially to return my thanks to my ever kind and obliging correspondents, Sir W. M. Milner, Bart., and the Rev. M. A. Matthews, &c., who have sent me many pleasing and valuable notes upon this species.

At no distant time, I purpose to find for these valuable pages a continuance of these sexual distinctions, and sincerely hope they may not prove utterly devoid of interest to my brother naturalists.

King's Lynn, Norfolk, July, 1864.

Digitized by Google

AN EXCURSION TO CAPE SPARTEL, BARBARY.

By F. Brittain, Esq.

In conformity with the promise that I made you in my last letter, I write you a short sketch of my excursion to Cape Spartel. I had arranged with Hamet, the guide, to leave Tangiers about eight o'clock in the morning, but we were detained about half an hour by a very violent shower; as soon as it was over and the clouds had passed away, we mounted our horses and left the town. It was market day and we met crowds of people bringing the produce of the country to the market. The procession of camels and mules laden with faggots, bundles of grass, or baskets of poultry, conducted by savage looking men of every complexion between that of a Moor and a black from Soudan, and the women mounted upon horses and mules, and dressed in their curious witch-like costume with everything but the eyes concealed, rendered the scene highly interesting and picturesque.

For the first four or five miles our path led across pleasant undulating prairies, carpeted with grass and composite flowers, such as *Achillæa, Gnaphalium, Antennaria, Hieracium, Hypochæris.* The brilliant ultramarine *Echium vulgare* and *Borago officinalis* were extremely abundant, and occasionally I noticed specimens of *Cichorium intybus.* As we had a ride of thirty miles before us, which it was necessary to complete before the closing of the gates of Tangiers, I could not dismount to take specimens of every plant that I saw, but putting my whip in my mouth I took note of many of those that I knew. When we reached the foot of a hill up which the horses could not walk very rapidly I dismounted, and seized the opportunity of taking a number of specimens. Amongst the rocks I found in great abundance *Cistus heterophyllus,* many species of *Epilobium, Campanula, Sedum, Fedia, Galium,* and a great variety of odoriferous plants, such as *Thymus, Origanum, Verbena, Rosmarinus,* and *Lavandula.*

When we reached the summit of the hill we saw the ocean before us, and its deep blue waves were crested with foam. As we descended we passed through a more thickly wooded country, but here few of the trees reach any considerable height; amongst the more beautiful are the *Algarroba* and the fig. The *Agave americana* and *Opuntia vulgaris* are very plentiful, but the palm is rarely seen near the coast. On the mountain

Digitized by Google

sides one of the commonest trees is *Quercus ballota*, and the myrtle is by no means rare. I noticed two species of *Acanthus*, one of them was *spinosus* but the other I did not know, In a sheltered nook by the side of a mountain stream I found *Osmunda regalis*, and a beautiful *Adiantum* with fronds about a foot long. After resting a short time at the lighthouse we went forward to Cape Spartel; the path is extremely bad and the descent into the little bay rather dangerous. Upon our arrival at the Cape we left our horses to graze upon the flat ground on the top of the cliffs and entered a most singular cavern. Here we sat upon the rocks with the sea rolling in just below us, and had lunch.

After resting an hour we mounted our horses and recommenced our journey, following a narrow path that led across an extensive plain. Sometimes we skirted fields of barley or *Zea Mays*, at the edges of which were growing *Scabiosa arvensis* and *succisa*, *Linum usitatissimum*, *Lotus corniculatus*, and other common British plants. The beautiful grasses *Briza major* and *minor* were abundant, but I saw no specimens of *media* which is so common in England. I also noticed *Lamarkia aurea*, and *Trisetum læflingianum*. As the weather was remarkably fine the birds were singing all the day. I distinguished the songs of nearly every bird that I am acquainted with; amongst them those of *Anthus arboreus*, *Sylvia hortensis* and *cineria*, *Troglodytes europæus*, *Alauda alpestris*, *Turdus merula* and *musicus*, *Salicaria phragmitis*. That unmusical bird, *Crex pratensis*, was the commonest of all.

In the course of our ride we reached the banks of a sluggish stream over which there was no bridge; my horse got safely over with some difficulty after sinking considerably over the knees in mud, but Hamet was not so fortunate, his horse fell in making violent exertions to extricate itself from the bog and Hamet was thrown to the ground. Whilst he was washing his legs which sadly needed it after his promenade in the bog, I spent the time in taking a survey of the neighbourhood. Fortunately the accident had happened in a beautiful valley near a village. On the roofs of the cottages stately storks were sitting in their enormous flat nests, others were flying slowly and gracefully in circles above the village. These singular birds nearly always build their nests upon houses, and, as their presence is considered a shield from evil influences, they are never disturbed. In September they all leave for the south and return about May, each one taking possession of its old nest. On our way home I saw many enormous *Onopordums* and *Centaureas*, *Eryngium maritimum*, *Statice*

Digitized by Google

Limonium, Cotyledon umbilicus, Alisma plantago, Papaver Rhœas, Orobanche major, Polygala vulgaris, Genista tinctoria and *anglica, Ononis arvensis, Melilotus officinalis, Chlora perfoliata, Scrophularia sambucifolia, vernalis* and *nodosa, Veronica Anagallis,* and a great number of *papilionaceous* and *umbelliferous* plants. We reached Tangiers in the evening after spending the day most delightfully.

A LIST OF THE MACRO-LEPIDOPTERA WHICH OCCUR IN PERTHSHIRE.

By F. B. W. White, Esq., F.B.S., Ed.

PART III.

NOCTUINA.

Thyatira batis, not common.

Cymatophora duplaris, not common.

C. flavicornis, Kinnoull, Rannoch.

Bryophila perla, common.

Acronycta tridens, rare.

A. psi.

A. leporina, not common.

A. ligustri

A. rumicis.

A. myricæ, Rannoch.

Leucania conigera, not uncommon on the flowers of *Lychnitis Flos-cuculi.*

L. comma, Bridge of Allan.

L. impura.

L. pallens.

Nonagria fulva.

N. crassicornis, one specimen, Mr. Trotter.

Gortyna flavago, common.

Hydræcia nictitans.

Axylia putris.

Xylophasia rurea, two varieties, one very dark.

X. lithoxylea, not common.

X. polyodon, a very dark variety.

Heliophobus popularis.

Charæas graminis, fond of sitting on the flowers of *Senecio jacobæa* in the day time.

Mamestra furva, Perth, rare.

M. Brassicæ.

Apamea Basilinea.

A. oculea.

Miana strigilis.

M. fasciuncula.

M. literosa.

M. furuncula.

Caradrina cubicularis.

Rusina tenebrosa.

Agrotis suffusa.

A. segetum.

A. exclamationis.

A. Agathina, rare.

A porphyrea.

Digitized by Google

Triphæna Ianthina.
T. fimbria.
T. orbona.
T. pronuba.
Noctua glareosa, Perth, Bridge of Allan.
N. plecta.
N. c-nigrum, not common.
N. brunnea.
N. festiva.
N. umbrosa.
N. baja.
N. sobrina, Rannoch.
N. xanthographa, rare.
Trachea piniperda.
Pachnobia alpina.
Tæniocampa gothica.
T. rubricosa, not common.
T. instabilis.
T. stabilis.
T. cruda.
Orthosia macilenta.
Anchocelis rufina.
A. litura.
Cerastis vaccinii.
C. spadicea.
Scopelosoma satellitia.
Xanthia cerago.
X. flavago.
X. ferruginea.
Cirrœdia xerampelina, once on the South Frith, Perth, Mr. Lamb.
Cosmia trapezina.
Dianthœcia capsincola.
D. cucubali.
Polia chi.
Miselia oxyacanthæ.
Agriopis aprilina.
Phlogophora meticulosa.
Euplexia lucipara, Rannoch.
Aplecta herbida.
A. nebulosa, rare.
A. tincta, Rannoch.
A. advena, rare.
Hadena assimilis, Rannoch.
H. adusta.
H. protea.
H. dentina.
H. oleracea.
H. pisi.
H. thallassina.
H. rectilinea, Rannoch.
Calocampa vetusta, not rare.
C. exoleta, common.
Cucullia umbraticæ.
Anarta melanopa, Rannoch and Glen Almond.
A. cordigera, Rannoch.
A. myrtilli.
Abrostola urticæ.
Plusia chrysitis.
P. bractea, Perth, and Bridge of Allan, frequents flowers of *Lychnis Flos-cuculi.*
P. festucæ.
P. iota.
P. pulchrina.
P. gamma.
P. interrogationis, Birnam.
Gonoptera libatrix.
Amphipyra tragopogonis.
Mania typica.
M. maura.
Euclidia mi.
E. glyphica.
Phytometra ænea.

Digitized by Google

NOTES UPON PLANTS.

By Leo H. Grindon.

Grasses.—Young botanists are accustomed to turn from the grasses in dismay, supposing them intensely difficult. At the present season, when so many species of this beautiful family are in perfection, it may be well to invite the student's attention to one or two of the commonest, and which are at the same time very easy to understand. Take for instance, the common meadow soft-grass, *Holcus lanatus*. While quite young, the panicle is close and compact. As the flowers open, it gradually assumes the form of a triangular pyramid, some plants commencing to bloom at the summit, others at the base, and when fully expanded, is hung all over, and most elegantly, with the little purple and pendulous anthers. Except when growing in shade, which is not often, (the meadow soft-grass being one especially of the open fields and even of the wayside) the hue of the panicle is of a peculiar pinky-red,—a character by which the plant may generally be identified at a glance. When abundantly diffused among mowing-grass, the surface of the meadow is markedly tinted by it, somewhat in the same way as by the sorrel, but not so agreeably, since the soft-grass has little or no lustre, nor is the colour rich and glowing as in the former. Another very obvious character, when the plant is taken in the hand, consists in the velvety softness of every portion, and especially of the leaf-sheaths. Now take an individual spikelet: at the base are the two "outer" glumes, purplish, boat-shaped, hairy, semi-transparent, and with a strong green rib up the middle, and another near each margin. Inside these are the glumelles, which being green, are plainly distinguishable by their colour alone, as well as by their much smaller size, and are visible through the glumes, which are often almost as clear as a piece of glass. Interior to these again are the organs immediately concerned in reproduction, and which consist of three stamens in the upper of the two flowers, and of three stamens and a solitary pistil in the lower one. The glumelle of the upper flower has a delicate and curving awn at the back It is so short, however, as to be quite concealed by the great glume, so that without dissection the flowers seem awnless.

Other very good species for the beginner are the common ray-grass, *Lolium perenne*, and the silver oat-grass, *Arrhenatherum avenaceum*. On

Digitized by Google

fine days they hang out their pretty anthers in profusion, and even without dissection we may plainly see the recurving and feathery stigmas.

Lathyrus pratensis.—The leaflets of this plant and of several of its allies have the veins parallel, almost like those of the leaves of an Endogen. No mistake or confusion can arise, since the petioles are provided with *stipules*, appendages which never occur in the latter class of plants. At the extremity of the petiole there is likewise a tendril. This organ is very rare in Endogens, and is familiarly illustrated in our hothouses only by the *Gloriosa* of the East Indies, a lovely climbing plant of the liliaceous type. When the *Lathyrus* comes into flower, of course, its affinities are plain enough.

Trifolium and *Medicago* often, perhaps always, have the veins of their leaflets forked like those of many ferns. Here again the stipules prevent any mistake that might arise from the idea that forked veins are peculiar to the Filices. True, they are very seldom met with in any other plants;—markedly so only in the *Salisburia* and some other trees belonging to the natural order *Taxaceæ*, which stands as a link between normal Exogens and the Cryptogamia.

Phyteuma spicatum.—This plant, only enrolled as a native some few years since, when it was observed wild in the South-east of England, I have recently discovered in some low and grassy ground on the banks of the river Weaver, near Northwich, Cheshire. The exact spot is within the circumference of a park, but there is no reason, that I can learn, to suppose that the plant was ever cultivated there; and although the margin of a river is always a suspicious locality, and the *Phyteumia* is a limestone rather than a sandstone plant, I am disposed to consider it a *bona fide* acquisition to our local Flora.

Geum rivale.—When this plant is out of flower, and the ovaries are in course of ripening, the entire head is elevated upon a peduncle, so as to stand at a considerable height above the relics of the floral envelopes and the withered stamens. Does this indicate a tendency towards the unisexual or monœcious state? Several of the Rosaceæ are almost normally unisexual, as *Rubus Chamæmorus*, and the strawberry is well known to be so in many instances.

Trifolium.—Students who possess microscopes, even of the simplest and oldest construction, should examine the calyces of the different species of this familiar genus, especially the smaller ones. They are semi-pellucid, most elegantly ribbed with green, and usually freckled with rose-colour.

Digitized by Google

Sometimes the tube is altogether white, while the long teeth are green and hairy. Supplementary specific characters are supplied by the last-named parts.

Vicia and *Lotus*.—Compound leaves are usually provided with petioles, and generally with rather long ones. It is interesting accordingly to find an exception in these genera, where the lowest pair of leaflets is almost close upon the stem; while in *Lotus* the leaves are absolutely sessile. There is no room even for the stipules ordinarily characteristic of a papilionaceous plant, the large broad portions which simulate stipules being in reality the first or lowest of the two pairs of opposite leaflets. They are articulated to the petiole in a way that stipules never are.

Bellis perennis.—What queer little cones the common field-daisy lifts up by midsummer! When the flower fades, first the white rays drop off; then the receptacle that holds the yellow disk-florets begins to elevate itself, and in a few weeks becomes a tall white cone like that in the inside of a raspberry. The surface is thickly covered with the ripening ovaries, every one of them retaining the withered corolla upon the summit, the extremities often turning reddish;—when mature, all drop away, beginning from the base of the cone, and the latter, naked and erect, and set in its little saucer of green leaves, (formerly the basket of the flower) gives an exact image of such a cap as is placed by fable and picture upon the heads of witches.

Lychnis vespertina.—The calyx, though tubular, readily separates into its five component sepals, thus resembling the calyx of a *Stellaria*, on a larger scale, and prettily illustrates the real nature of a tubular calyx, *i. e.* shows that the latter is compound as to its elements, and that a one-leaved calyx, like a monopetalous corolla, is only a term of convenience, no such thing being actually found in nature.

Reports of Societies.

West-Riding Consolidated Naturalists' Society.—The delegates from the various Societies in the above Union met at Leeds, on the 9th ult., for the transaction of business, after which a general meeting was held at the Working Men's Institution, Mr. G. Walker in the chair. Several animated discussions took place on various subjects in Natural History, shewing the advantages of a well-regulated Union of Societies. Mr. Taylor spoke upon the irregularity of development, and the habits and structure of *S. Bombyliformis*. Larvæ

Digitized by Google

of *N. lucina** were exhibited collected on *Primula veris*, at Bramham Moor. Many Conchological, Oological, and Botanical specimens were also exhibited; the following list contains the principal species of plants on the table:—

Ranunculus Flammula, R. sceleratus, R. arvensis, Alliaria officinalis, Tilia europæa, Sparganium ramosum, Listera ovata, Orchis maculata, Comarum palustre, Polygonum amphibium, P. aviculare, Galium cruciatum, G. saxatile, G. verum, Veronica officinalis, Euphrasia officinalis, Thymus serpyllum, Stachys sylvatica, Betonica officinalis, Nepeta Cataria, Lysimachia Nummularia, Hypericum quadrangulum, H. perforatum, H. pulchrum, H. humifusum, Papaver Rhœas, Lapsana communis, Chrysanthemum Leucanthemum, Tanacetum vulgaris, Hieracuim aurantiacum, Sagittaria sagittifolia Tamus communis, Atropa Belladonna, Silene inflata.

Warrington Field Naturalists' Society.—At a recent meeting of this Society the honorary Secretary, Mr. Peers, read a description of the larva of *Tortrix viburnana* (hitherto undescribed) which he first found agglutinating the leaves of *Andromeda polifolia* on the 18th May, and subsequently screwing the leaves of *Myrica gale* on Woolston Moss, near Warrington. The perfect insect made its appearance on the 26th June. Mr. Cash exhibited specimens of *Volvox globator* recently found in the neighbourhood in great abundance; also a specimen of *Stephanoceros Eichhornii*, and various other animalculæ, under the microscope.

Huddersfield Naturalists' Society.—At the Ordinary Meeting of this Society held on Monday Evening, July 11th, Alfred Beaumont, Esq., President, in the chair, a more than usually interesting collection of Plants, Insects, &c., were exhibited by the members. Mr. W. H. Charlesworth exhibited a good, and neatly set, collection of Coleoptera, including *Calosoma Inquisitor, Cychrus rostratus*, from Epping, *Pyrochroa rubens*, from Sherwood Forest, *Dromius quadrimaculatus*, &c. Mr. Jas. Varley exhibited some very remarkable varieties of *Albraxas grossulariata*, a description of which will appear in an early number of "The Naturalist." The following plants from the neighbourhood were on the table:—*Rosa arvensis, R. canina, R. villosa, Linaria cymbalaria, L. purpurea, L. minor, L. vulgaris, Circæa alpina, C. lutetiana, Lythrum salicaria.* Mr. Jessop also exhibited a fine plant of *Linaria cymbalaria*, with double flowers, gathered at Waterloo, near Huddersfield. Mr. Varley brought the following species from the neighbourhood of Filey, &c.:—*Centauria*

* *N. lucina.* "The larva has not been found in England."—*Stainton's Manual.*

Digitized by Google

Scabiosa, Lycopsis arvensis, Plantago maritima, P. coronopus, P. media, Achillea millefolia (red flowers), *Erodium cicutarium, Hyoscyamus niger, Acorus calamus, Anthyllis vulneraria, Triglochin palustre.*

July 23rd.—This meeting was held, by invitation, at the residence of the President, Alfred Beaumont, Esq., Greave, Meltham. After tea, and inspecting Mr. Beaumont's beautiful collection of Birds and Insects, about 100 species of plants were laid on the table, on which some remarks were made by Mr. W. Guthrie, of Fixby. An interesting discussion also took place on several subjects in Natural History, including the annual migration of small Birds. Amongst the plants above-named the following claim more particular notice, viz.:—*Geum urbanum, Alchemilla vulgaris, Epilobium montanum, E. alpinum, Sedum Rhodiola, S. Telephium, S. rupestre, Hydrocotyle vulgaris, Helosciadum nodiflorum, Œnanthe crocata, Æthusa cynapium, Conium maculatum, Smyrnium Olusatrum, Lonicera Periclymenum, Sambucus nigra, Galium uliginosum, Valeriana officinalis, Sonchus arvensis, Campanula latifolia, C. Rapunculus, C. rotundifolia, C. persicifolia, C. glomerata, C. hederacea, Vaccinium Oxycoccos, Erica tetralix, E. cinerea, Ligustrum vulgare, Erythræa Centaurium, Polemonium cœruleum, Myosotis palustris, Symphytum tuberosum, Rhinanthus Crista Galli, Linaria vulgaris, Var. palustris, Mentha arvensis, Stachys palustris, S. sylvatica, Scutellaria galericulata, Lysimachia vulgaris, Plantago media, Blechnum boreale, Aspidium recurvum,* (?) *Equisetum sylvaticum, Ranunculus Flammula, Corydalis lutea, Draba incana, Hesperis matronalis.*

Observations.

A Botanical Tour.

On Saturday, June 18, accompanied by my friend Mr. Oxley, president of the Wakefield Naturalists' Society, I explored the south-west side of Wakefield. Living on the north or rather north-west by north I have previously examined that side of Wakefield well. By comparing the two and other neighbouring districts, I find that many plants are exceedingly local in their distribution. Many which are abundant in one locality being altogether absent from immediately adjoining districts. Again, many which in "Withering" and other "British Floras" are described as "very common" I find very sparingly distributed in this quarter. As an example of this I may cite *Sanicula europea*, which is described as abundant. I have hunted many woods—its favourite locality — and have only found three specimens, two in Langley Wood, Lofthouse, and one in Howe Park, (a wood) near Walton.

Digitized by Google

We surely cannot call this "abundant."

It is evident, then, that we cannot really become aquainted with the Flora of our portion of Britain or even of this great County of York by means of these "British Floras." It is by means of local lists, and local lists alone, that any real knowledge of the distribution of plants can be obtained.

I shall make no apology then for troubling you with the result of our Saturday's tour, deeming what I have said a sufficient excuse for so doing.

I may add that we found many plants besides those named in this list; but I thought it unadvisable to insert them here, as they seem to be common over a very large district.

The following is a list of plants collected, excluding the more common:—

Sagittaria sagittifolia. Canal near Walton; plentiful.

Ornithopus perpusillus. A few plants; very local. Railway side.

Trifoluim procumbens. Rather local; Canal side, Walton. Plentiful.

Polygala vulgaris.

Melampyrum pratense. Howe Park; plentiful.

Hypericum humifusum. Few plants; Railway side, near Wakefield.

Potamogeton natans. Barnsley canal.

Ranunculus aquatilis. New Miller dam.

Veronica montana.

Alisma plantago. Barnsley canal.

Sherardia arvensis. Abundant; New Miller dam.

Asperula odorata. Abundant; Howe Park.

Spergula arvensis.

Parietaria officinalis. New Miller dam.

Sanicula europea. Howe Park.

Cherophyllum sylvestre.

Conium maculatum.

Orchis maculata.

FERNS.

Lastræa Filix mas., *L. spinulosa.* } Everywhere abundant.

Athyrium Filix-fœmina. Howe Park.

Asplenium Trichomanes. New Miller dam; a very few plants.

Asplenium Ruta-muraria. Do.

I have found a very few plants of *Polygonatum multiflora*, in a wood, near Lofthouse; and on a railway embankment at the same place, a few plants of *Polypodium Dryopteris.*—J. HEPWORTH, Lofthouse, Wakefield.

THE HAWFINCH BREEDING IN NORFOLK.—A splendid pair of Hawfinches, *Fringilla coccothraustes*, in full summer dress, was shot on the 2nd instant at Weston, a village about eight miles from Norwich; from information I received they bred and reared their young in that neighbourhood, the nest being placed in a thick hawthorn hedge a few

Digitized by Google

feet from the ground, near to a garden to which they proved very destructive, their food consisting chiefly of the green peas, with which their crops and stomachs (on being dissected) were found to be completely filled. A pair bred in the same locality in the summer of 1861.—T. E. Gunn, Norwich, July 30, 1864.

Fringilla incerta.—Your readers will be pleased to learn that I have a living specimen of that exceedingly rare and doubtful British Bird, *Fringilla incerta*, of Risso ; I at first mistook it for a hen Greenfinch.—Louis Fraser, The Green, Knightsbridge, London, S.W., July 13, 1864.

Notes and Queries.

Ateuchus.—In reply to your correspondent A. L., I beg to inform him that the reason why the *Ateuchus* is called the Sacred Beetle of the Egyptians is, that the *Ateuchus* was the symbol used on the Egyptian monuments to represent the God "*Pthah*," who was worshipped as the embodiment of strength and stability.—T. G. P.

Veronica peregrina is now well established in the neighbourhood of Perth. It is a common weed in Dickson and Turnbull's nurseries on the side of the river Tay, opposite to the fair city. How this foreigner (if such it be) has gained an entrance into our country, I believe as yet has not been satisfactorily determined, only the plant is here and in abundance as a living evidence of the fact. Has this little annual been found in any other part of Great Britain? I am perfectly aware that it occurs plentifully in more places than one in the North of Ireland, particularly in the vicinity of Londonderry, but like its appearance at Perth, who can account for it? Mr. W. Galt, in the Glasgow Manuscript Magazine, has some very interesting remarks upon the native residence of *V. peregrina.* Would it not be very acceptable to see some further light thrown upon this humble annual? One thing, however, appears to be certain, it is now firmly, and I have reason to believe permanently, established in the British Isles, and like another foreign intruder *(Mimulus luteus)* will probably in a few years considerably extend its boundaries.—John Sim, Bridge End, Perth.

Exchange.

I have *H. Semele* which I should be glad to exchange for *C. Hyale, A. cratægi, E. Cassiope, C. Davus, L. Sibilla, A. Irus, G. C. album, T. pruni, T. W. album, P. Arion* or *P. Actæon.* Applicants will be kind enough to write before sending any box.—A. J. Hay, Uckfield, Sussex.

Digitized by Google

Original Articles.

NOTES ON THE ROTIFERA.

By J. Cash, Warrington.

No. 2.—Melicerta Ringens.

This rotifer, which, according to the old arrangement, forms a genus of itself, is distinguished by the following characters, according to Pritchard. "Case of a brownish red colour, composed of small lenticular (?) bodies, deposited by the animalcule; rotary organs simple, with four lobes when expanded; alimentary canal divided into segments, in one of which (the pharyngeal bulb) are complex jaws; mouth situate at the bottom of the cleft, between the two large lobes of the rotary organ. Male generative organisation unknown. Two water-vascular canals arising from a contractile vesicle ascend towards the head. There are two tactile appendages with setigerous extremities on each side of the head, and two eye-spots in the young animal."

This is almost as common a rotifer as any we have in the neighbourhood of Warrington, and if not the most beautiful, it is at any rate the most interesting of the whole class, from the fact that instead of merely secreting a gelatinous case, like the Stephanoceros, in which to live when it has reached maturity, it builds for itself a house, using for the purpose bricks of its own moulding. It is this habit of building which distinguishes it from all other members of the class, and which, I think, should keep it distinct, however much resemblance there may be in regard to internal organisation. Mr. Gosse, however (see *Popular Science Review*, vol. i., p. 481,) takes nine genera, each containing a single species, and reduces them to two, giving the generic name of Melicerta to the following:—*Ptygura*, *Œcistes*, *Tubicolaria*, *Limnias*, *Melicerta*, and *Cephalosiphon*; while *Megalotrocha*, *Lacinularia*, and *Conochilus*, constitute another genus, to which he gives the name of *Megalotrocha*. These two new genera are distinguished by the circumstance that in the former the individuals are always solitary; in the latter they are (in adult age) aggregated by mutual adhesion into somewhat spherical masses, composed of many animals radiating in every direction from a common central point of adhesion.

Digitized by Google

Without entering into the question of the propriety of this change,—which, however, it may not be amiss to say is in some respects an admirable one—I propose to supply a few notes with regard to *Melicerta ringens*. The operation of brick making, which is its peculiar characteristic, is as interesting a one as can well be conceived. Let us imagine that we have a young and vigorous specimen before us. The first thing that attracts our attention is, of course, the machinery of the expanded disc. We cannot avoid noticing it, and so beautiful is the spectacle that if we have never seen a Melicerta before, some time will elapse before we can be persuaded to take our eyes from it; but if we look carefully we shall see a little below this—if the creature happens to be engaged in building—a small circular or cup-like cavity, within which a little pellet is revolving with a ceaseless and rapid motion. This pellet is identical in shape and size with those which form the case. Now let us watch the movements of the creature rather closely. We see it sway violently from side to side—its flower-like disc the while being considerably changed in outline—the edges of each lobe or petal are turned upwards and made to approach each other—presently it bends forward and deposits the pellet, or brick, or whatever we choose to term it, with the utmost precision, always taking care to deposit each one so as to make its house gradually wider as it increases in height. When the Melicerta has "righted" itself, it recommences its brick-moulding; in a few minutes the little circular cavity is re-filled, and another pellet is laid. Sometimes, however, though very rarely, the Melicerta does not succeed in depositing the pellet in its proper place. On one or two occasions I have seen it fail, when it has been driven away by the ciliary current. The pellets, which are apparently spherical, are cemented together by a glutinous substance secreted by the Melicerta in the cavity in which they are moulded: this substance is also mixed with the fine particles from the surrounding water, of which they are composed, in order to give them cohesion, else they would readily be dissolved.* As it is they preserve their consistency for a considerable length of time. Usually, however, in a few days after the death of the animal they disappear. During the present summer I introduced a large number of Melicertæ into my aquarium on the leaf-stems of *Anacharis*, but from some cause or other, which I am unable to explain, they all died, and their cases soon became dissolved.

* In the last edition of "Pritchard's Infusoria," these pellets are erroneously said to be secreted.

Digitized by Google

Professor Williamson says that the young Melicerta commences its house by secreting a "thin hyaline cylinder," and the first row of pellets is deposited, not at the base, as would be expected, but in a ring about the middle of the tube. "At first new additions are made to both extremities of the enlarging ring: but the jerking constrictions of the animal at length force the caudal end of the cylinder down upon the leaf, to which it becomes securely cemented by the same viscous secretion that causes the little spheres (pellets) to cohere." Once I came upon a Melicerta which had not commenced to build at all. It had not laid a single brick, and such an odd appearance did it present, with its two arms, or "tactile appendages," stretched out at almost right angles to its body, that I was greatly puzzled at first to make out what it was. It became clear, however, on a close examination, that it was nothing but a young Melicerta. It did not commence building whilst under my observation.

The great beauty of the Melicerta lies in its ciliary apparatus. To one unaccustomed to the use of the microscope there is nothing more enchanting than this. Everything else is for the moment lost to view. The observer sees the ciliary waves chasing one another in regular succession round the lobes of the disc, and can hardly persuade himself that there is not an actual rotatory movement going on. It is, however, the result of an optical illusion "produced (as Mr. Gosse says,) by the cilia being brought momentarily closer together at certain regular points, causing opacity, and alternating with correspondent separations, causing transparency. These waves run ceaselessly round, but the cilia themselves do not change their places, they merely bend and straighten themselves in rhythmic alternation." This action may be more distinctly perceived, and the building operations more clearly traced, by the introduction of a little carmine into the water.

As is the case with Stephanoceros, the male of the Melicerta is unknown. The creature is supposed to be dicœcious, and the fact that, among the vast number of specimens that have been examined, no trace of a male organisation has been found, seems to afford some ground for this supposition.

My next communication will be on the Floscules.

Digitized by Google

A LIST OF THE MACRO-LEPIDOPTERA WHICH OCCUR IN PERTHSHIRE.

By F. B. W. White, Esq., M.D., F.B.S., Ed.

PART IV.

GEOMETRINA.

Epione apiciaria, Callander.

Rumia cratægata.

Venilia maculata, local, but common.

Metrocampa margaritata.

Ellopia fasciaria.

Selenia illunaria.

S. lunaria.

S. illustraria.

Odontopera bidentata.

Crocallis elinguaria, not common.

Ennomos tiliaria.

Himera pennaria.

Phigalia pilosaria.

Amphidasis Betularia.

Cleora viduaria, I took one specimen of what seems to be this species near Perth, in 1858.

Boarmia repandata.

Tephrosia laricaria, near Perth.

Gnophos obscurata.

G. pullata.

Dasydia obfuscaria, Rannoch, &c.

Psodos trepidaria, Rannoch.

Pseudoterpna cytisaria, two specimens, near Perth.

Geometra papilionaria, rare.

Ephyra punctaria.

Acidalia remutata.

A. bisetaria.

A. fumata.

A. aversaria.

C. rotundaria, rare.

C. exanthemata, not common.

Macaria liturata.

Halia Wavaria.

Fidonia carbonaria, Rannoch.

F. atomaria, abundant.

Fidonia piniaria, abundant.

F. brunneata, Rannoch.

F. limbaria, Dunkeld, Bridge of Earn, and three miles North-east of Perth.

Abraxas grossulariata, once used to occur at Perth, not found there now?

Lomaspilis marginata.

Hybernia rupicapraria, abundant.

H. leucophearia, not common.

H. progemmaria.

H. defoliaria.

Anisopteryx Æscularia.

Cheimatobia brumata.

C. borearia.

Oporabia dilutata.

Larentia didymata.

L. multistrigaria.

L. cæsiata, in some places abundant. I have seen this moth come and rest on my clothes, when sitting quietly among the heather.

L. flavicinctata, Rannoch, Ben Lawers, &c.

L. olivaria, not common.

L. miaria.

Emmelesia Alchemillata.

Digitized by Google

E. albulata, common.
E. ericetaria, Rannoch.
E. blandiata, Rannoch.
Coremia munitata, Rannoch.
Eupithecia nanata, not rare.
E. tenuiata, the larva is not rare in Sallow catkins, near Perth.
E. rectangulata.
E. exiguria.
Thera coniferata, rare.
T. variata.
Ypsipetes impluviata, common; at one tree I found twenty-eight pupæ of this moth in 1862.
Y. elutata, very variable.
Melanthia rubiginata.
M. ocellata.
Melanippe tristata, abundant.
M. unangulata, common.
M. biriviata.
M. montanata.
Anticlea badiata, not common.
Camptogramma bilineata.
Phibalapteryx lapidata, Rannoch.
Cidaria psittacata. This species hibernates.
C. miata.
C. picata, not common.
C. corylata.
C. russata.
C. immanata.
C. suffumata.
C. silaceata.
C. Prunata.
C. testata.
C. Populata.
C. fulvata.
C. pyraliata.
Pelurga comitata.
Eubolia mensuraria,
E. Plumbaria.
Chesias spartiata, abundant.
C. obliquaria, not common, Kinnoull, Scone, Glen Almond.
Odezia chaerophyllata.

PYRALIDINA.

Hypena proboscidalis.
Pyralis farinalis.
Aglossa pinguinalis.
Herbula cespitalis.
Ennychia cingulalis, local.
Hydrocampa Nymphæalis.
Botys urticalis.
B. fuscalis.
Pionea forficalis.
Scopula alpinalis, Rannoch, Ben Lawers.
S. decrepitalis.
Spilodis stictalis.
Eudorea atomalis.
E. ambigualis.
E. pyralella.
E. frequentella.
E. alpina.
E. gracilalis.
E. pallida.
Aphomia colonella, larva in wasps' nests.
Achroia grisella, Perth.
Nephopteryx abietella.
Crambus ericellus.
C. inquinatellus, Rannoch.
C. geniculeus.
C. tristellus.
C. pinetellus, not uncommon.
Chloephora prasinana.

Digitized by Google

Review.

"*British and Garden Botany*," *by* LEO H. GRINDON, *8vo., with numerous Illustrations.* (Routledge, 1864.)

To quote from Mr. Grindon's preface, "This book is intended for persons who take an interest in plants and flowers, whether wild or growing in gardens, and who are wishful to acquire a knowledge of such portions of botanical science as are useful, agreeable, and easily at command, though without leisure to study Botany in its minute details." With this object the author has devoted the first sixty-seven pages to an elementary treatise on Botany, and an explanation of most of the terms used in a description of a plant. Then follows an "Artificial Key to the Families, &c., described in the book."

This key is somewhat novel in its arrangement, and answers the purpose for which it is intended better than any other attempt of the kind we have seen. It does not profess to be exactly an analytical key to species in general, but rather an "index" by which any plant under examination may be easily found in the descriptive part of the work; though at the same time for the discrimination of species it is an admirable guide. By a proper and careful use of it any plant *in flower* may be easily determined, and one is not obliged to wait, as in other "keys," for the fruit, or ripe seed, before a species can be satisfactorily made out. This is certainly a step in the right direction, and will be very useful to the young botanist.

In the descriptive portion, which occupies 747 pages, under each British order containing exotic species grown in greenhouses or gardens, a few remarks on such species are appended; and those orders, which are not represented in our native *flora*, but include species occasionally cultivated, are introduced, with remarks on the species as before.

In those critical genera, *Ranunculus*, *Rosa*, *Rubus*, *Hieracium*, and *Salix*, no attempt is made to unravel the complicated question of species *versus* varieties, but each genus is reduced to a minimum number of species: thus *Salix*, of which Prof. Babington describes thirty-one species, is reduced to fifteen; though under each described species is mentioned a large number of plants given as varieties. Whether the author intends to reduce the number of British species to fifteen, or only to describe those of most distinctive characters, we are not aware.

One thing we must find a little fault with, the undue preference given to English names of plants. These names being in many cases

Digitized by Google

merely *local* are not calculated to increase the knowledge of botany amongst the masses, for it is certain that any one acquiring a taste for botany, and commencing to study it by local names only, will, if inclined to read and understand either British or continental works on the science, or make himself acquainted even with our British flora alone, have to begin his studies afresh, with the proper nomenclature. At the same time it is possible that the way in which Mr. Grindon has used them may have a tendency to induce some to make themselves acquainted with the scientific names.

We can confidently recommend Mr. Grindon's book to any one inclined to commence the study of Botany, and if such persons make a proper use of it by acquiring a knowledge of both names, they may soon become very well acquainted with our English *flora*, and be able to read and understand more advanced works on the science. The introduction of exotic species, which is quite a new feature in English botanical text books, will give the student more comprehensive ideas and wider views than the consideration of the limited number of species indigenous to Britain can possibly do; and perhaps lead to the study of a branch of the science which among amateurs at least, has been very much neglected.

Reports of Societies.

Society of Amateur Botanists.—At a meeting of this Society, held on the 17th ultimo, at No. 192, Piccadilly, the president, M. C. Cooke, Esq., in the chair. Mr. A. B. Cole read a paper on *Sturmia Loeselii*, with especial reference to the fertilisation of that plant. Examples of the following British species, in a living state, were then laid on the table by one of the members:—*Bupleurum falcatum*, *Chenopodium hybridum*, *C. murale*, *Carduus setosus*, &c. Another member exhibited and distributed specimens of the following Jersey plants:—*Ranunculus ophioglossifolius*, *Dianthus prolifer*, *Silene quinquevulnera*, *Orchis laxiflora*, *Epipactis palustris*, *Ophioglossum lusitanicum*, *Isoetes Hystrix*, and many others. It was then agreed that the next meeting should be devoted to the exhibiton of new and rare British plants.

Observations.

A Day in the Lake District, in July.

Having previously determined to spend a few days in the neighbourhood of Windermere, towards the end of July I packed up, and took advantage of the fine weather in the last week thereof, making the "Ferry Hotel" my head quarters.

Starting fair, early in the morning, I commenced by examining the tree

Digitized by Google

trunks in the woods with very little success; afterwards beating amongst the nut bushes, I found *Emmelesia hydraria* in profusion, *Larentia olivata* rather scarce, but fine, *Eupethœcia rectangulata* amongst crabs, and *Eupithecia tenuiata*, near sallows; the first all light green varieties, the latter fine rich coloured specimens, but both very much behind the time at which they appear in this neighbourhood. *E. rufiasciata* was also out; July is very late for the first brood, and yet too early for the second. *Cidaria immanata* was in profusion, as was also *Hypenodes costæstrigalis*, and the wild cherry trees swarmed with *Argyresothia ephippella*. Tiring of this game, I turned my attention to larva hunting on the foxgloves growing in the open parts of the woods, and here I found that the larvæ of *Eupithecia pulchellata* had been in abundance, and that there was still plenty of it left of all sizes. I also found it feeding on the *Pentstemon*, but it had not closed the flower up as it does the foxglove. Desirous of changing the character of my ground, I struck into the dark, close growing woods, and had scarcely done so, when the object of my search, *Emmelesia tæniata*, met my eye for the first time alive. It was dislodged from a young oak. Following up the clue to its habits here observed, I was soon in the darkest part of the wood, disturbing them as I went, but not always capturing them, because they were very fond of getting a few young trees between themselves and me, as soon as possible, and of getting into closer and rougher places than I could get into or move about in. Night at length made even my pet dark places too dark to see this dark looking moth as it flies; and I had just sat down to tea when a waiter walked into the coffee room, saying "you had better see if he is here," and another pleasure was added to my tea table, in the shape of my old friend Mr. J. B. Hodgkinson, to whose suggestions we are all indebted for the great discovery of the year, the *proper food plant of E. pulchellata*, for though I have found it on two other plants, there is no doubt but that the stamens of the foxglove is its proper food. Arrangements for a day together closed a "red letter day" in the Lake District in July.—C. S. Gregson, Aug. 5th, 1864.

Remarkable varieties of Abraxas grossulariata and Arctia caja.—About the 5th of June, a friend of mine brought me a few larvæ of *Abraxas grossulariata* from his garden, and asked me if I knew what they were and how to get rid of them, for there were thousands on his gooseberry trees. I went the following day and collected a large quantity; they were nearly full fed and commenced changing into pupæ

Digitized by Google

at once. On the 1st of July, the imagos began to make their appearance, and I am amply repaid for my trouble in collecting so many larvæ of a very common insect by the beautiful varieties I have thus obtained. Some of them are very pale, the usual orange markings being of a light buff; others, of which I send you two examples, are very dark, the orange bands on the wings being entirely obsolete, and one of them has a black margin half an inch broad, an enlarged black basal blotch and an entire absence of the usual spots upon the wings, though the body is orange with black spots as in the ordinary form. I have likewise bred a good variety of *Arctia caja*, the fore wings being very light, and the hind wings and body are of a very light orange colour, instead of the usual deep red.—J. Varley, Almondbury Bank, Huddersfield.

[We give in plate 1 a sketch of the above varieties; together with (Fig. 1) the normal form of the insect. Fig 3 is the dark variety mentioned above, and Fig. 2 is an intermediate variety.—Eds.]

Notes and Queries.

I see in No. 8 of "The Naturalist" that *Linaria purpurea* was exhibited at one of the meetings of the Huddersfield Naturalists' Society. Will any member furnish me with the locality for it, through these columns.—James Britten.

NOTES ON A FEW MORE BUCKINGHAMSHIRE RARITIES.

July, 1864.

By James Britten.

Having just returned from my summer's holiday in the above-mentioned county, and mindful of a promise to lay the results of that holiday before the readers of the "Naturalist," I take up my pen to attempt the pleasing task. I have been staying this time at High Wycombe, a rapidly increasing town, situate in a valley through which runs the little river Wick, to which the town owes its name. It possesses a magnificent church, of great interest to the archæologist, but as my object was Botany and not Archæology, I did not pay so much attention to its beauties as I

Digitized by Google

might otherwise have done. My first walk was into the Park, situated on the side of a hill, at the back of the town, at the top of which are two or three woods. Whilst rambling in these woods an *Epipactis* was noticed, which, on investigation, proved to be *E. media*. This plant was new to me, and as *E. latifolia* grew abundantly in the same spot, I took the opportunity of observing the chief differences between the two. *E. media* is a taller plant than *E. latifolia*, and is altogether lighter in colour; the flowers are also larger, and want the purple lip which is so ornamental to the latter; this lip in *E. media* terminates in a sharp point, while in *E. latifolia* the point is blunt, and frequently curves under. Another difference is noticeable in the time of flowering: the former was in full blossom on the 20th of July, while of the latter but one or two flowers appeared. I found both these species also in Dane Garden Wood, near the Park, and in Bisham Wood, Berkshire. In the Park woods, the dead stems of *Neottia Nidus-avis* were abundant, and the Wall Lettuce, *Lactuca muralis*, is common here, as well as on walls and in woods throughout the neighbourhood. Descending from the woods to the waterfall, I noticed near the latter a nice patch of *Aconitum Napellus*; here, however, it may have been planted. Passing through the lodge gates, I shortly arrived on a hilly common, known by the name of Keep Hill; *Carduus acaulis* was here very conspicuous, with *C. nutans*; and the prickly heads of St. Barnaby's Thistle (*Carlina vulgaris*) were just appearing, *Hippocrepis comosa* was abundant earlier in the season; and *Herminium monorchis* is stated in a local paper to have been found here. Crossing the hill, I entered Dane Garden Wood, where I observed a few plants of the Tutsan (*Hypericum Androsæmum*) which name is evidently a corruption of "*tout sain*," or "*tout saint*," given it in the days when the St. John's Worts were endowed with imagined mystic powers. *Lysimachia nemorum* is abundant at the top of this wood; and in the lower part are a few plants of *Epilobium angustifolium*. Passing across a field, I arrived at the railway, and walked part of the way home along the embankment, where, among numbers of plants of *Verbascum nigrum*, I was delighted to find three or four of the rare *V. Lychnitis*, each bearing several tall stems covered with white flowers, which had a sweet scent, resembling that of honey. I believe that this species has not been hitherto noticed in the county. I selected one or two specimens, taking care to leave plenty for seed, and then returned home, well satisfied with my success, noticing *Chelidonium majus* in the hedges near the town.

Digitized by Google

Another of my more successful rambles was to Hughenden, formerly spelt Hitchenden, the seat of the Hon. B. Disraeli. The woods here seem never to have been investigated, and are full of treasures. On the chalky banks *Orchis pyramidalis* was noticed, just off flower, with *Hippocrepis comosa*, *Chlora perfoliata*, &c. In a young fir plantation was a magnificent plant of *Atropa Belladonna*, having three main stems, each at least four feet high, and of the thickness of a good-sized walkingstick, densely branched, and covered with the dull purple flowers and immature fruit. Ascending into the wood, I discovered *Monotropa Hypopitys*, just going to seed, and a fine clump of *Pyrola minor*. The flowers of the specimens here gathered had a delicate pink tinge at the edges of the petals, which, coupled with the fact that the stems were spirally twisted, induced an able local botanist to consider the plant *P. media*, but a reference to Professor Babington quickly dispelled this pleasing illusion. In another part of the wood I found *Epilobium angustifolium*; this handsome plant appears to be rather frequent in the neighbourhood: also *Aquilegia vulgaris*, *Neottia Nidus-avis*, *Habenaria bifolia*, *Orchis maculata*, *Ophrys muscifera*, and a few plants of *Epipactis latifolia*. At the bottom of the wood I came upon another clump of *Pyrola minor*; it is probably sparingly distributed through the neighbouring woods. Making my way out of the wood, I strolled across one or two fields, in which I noticed *Linum usitatissimum*, and in a short time arrived at Downley Common, where I saw nothing worthy of special notice. Following the footpath towards Wycombe, I arrived at a very small village called Littlemore; here, by the roadside, were about a dozen healthy young plants of *Hyoscyamus niger*. The footpath now led through Tinker's Wood, which is said by tradition to take its name from the murder of an unhappy tinker within its precincts, in "days lang syne"; on a bank near which was *Alchemilla vulgaris*. On emerging from the wood, I came into a field, which I may characterise as being a field full of wonders. The crop, or rather the second crop, was *Trifolium elegans*, and the first object which arrested my attention was *Orobanche minor*, growing in some abundance on *Medicago lupulina*: here the corolla was of the usual colour, whitish striped with lilac; but I am informed that in specimens gathered near Bisham, Berks., in a similar situation, the blossoms were of a brick-red hue. Here and there, in some quantity, was a large and very handsome *Trifolium*, with which I was unacquainted; it had probably been introduced with the crop, but certainly not for agricultural purposes. I at first thought that it might be *T. patens*,

Digitized by Google

but on forwarding a specimen to my friend, the Rev. W. W. Newbould, he kindly informed me that it was not that species, but a form of *T. procumbens*, distinguished specifically by Schreber under the name of *T. campestre*. It is a much larger plant than *T. procumbens*, and appears very distinct, growing quite erect, and bearing very large heads of pale orange-coloured blossoms; the leaves are comparatively small, and cluster round the stem; the whole plant has a very stiff appearance. In one part of the field I gathered a proliferous variety of *Lapsana communis*, having buds growing out of the flower-heads. A form of *Ranunculus repens*, with semi-double blossoms, was abundant all over the field; and as this phenomenon in Ranunculaceous plants has attracted some notice in the "Naturalist," I may here mention that I have noticed near London *R. Flammula*, *R. acris*, and *R. repens*, bearing flowers in which some of the stamens are converted into petals. My attention was attracted by a light brown patch at a little distance. On nearer investigation it proved to be a large sheet of *Cuscuta Trifolii*, just coming into blossom. I had nearly passed it over as a burnt-up piece of ground. The injury which this plant causes to the crop, where it occurs in any quantity, must be immense: it entirely smothers everything which comes within its grasp, spreading over a circular patch of ground with fearful rapidity. In some parts of Essex, where it is frequently too abundant, I am informed that the farmers' men tear it off the field in large sheets, and wrap it round them as though it were a coat! A plant of *Trifolium pratense*, having pure white blossoms, was my last discovery in this wonderful field.

In a walk to West Wycombe, *Nepeta Cataria* was noticed by the roadside. I took a piece, intending to try its effects upon one of the feline race, and am glad to say that the result exceeded my anticipations. The cat smelt it, rolled upon it, took it up, and at last chewed it, evincing the greatest delight all the while. *Corydalis lutea* abounds on the walls about West Wycombe Park, and on the little bridge which there crosses the Wick. In one of the woods above the Park, *Hypericum Androsæmum* was of frequent occurrence: and on a wall at West Wycombe was *Pyrethrum Parthenium*. Going from West Wycombe towards Bledlow Ridge, I noticed the Sweetbriar (*Rosa rubiginosa*,) in some plenty in the hedges and by the roadside; *Asperula cynanchica* on the chalky banks; this also grows on Keep Hill, and on other commons; and the *Centaurea nigrescens* of English authors frequently occurs by the roadsides, and on the borders of fields. Returning in the direction of Wycombe Union, *Iberis amara*,

Digitized by Google

Linaria Elatine, *L. spuria*, and *L. minor* were abundant in the corn fields. These plants, especially the *Iberis*, are general in the neighbourhood, and the last named is so remarkably common, not only in corn fields, but by roadsides, and even in woods, that I would suggest that the term "local" would convey a better idea of the frequency of its occurrence than that of "rare," as given in our Floras. In a pit above West Wycombe Park, I have seen specimens measuring at least a foot across, and covered with blossoms so white as to be scarcely distinguishable from the surrounding chalk; in some plants the flowers are of a lilac hue. In the woods above the Union are *Neottia Nidus-avis*, *Orchis latifolia*, *Habenaria bifolia*, *Hippocrepis comosa*, &c., and by the roadside I gathered the garden form of *Pyrethrum Parthenium*. *Chelidonium majus* occurs by the gate of Bradenham House; and in the corn fields opposite Bradenham *Anagallis cærulea* is abundant. I cannot help thinking that this is specifically distinct from *A. arvensis*, although the last named occasionally varies in the colour of its flowers. The three above-named *Linariæ* are here in great strength.

(To be continued.)

REVIEW OF THE BRITISH ROSES,

ESPECIALLY THOSE OF THE NORTH OF ENGLAND.

By J. G. Baker, Esq., of Thirsk.

Part V.—SYSTYLÆ.

Bushes with sub-erect or rampant stems, uniform short broad-based strongly hooked prickles, simply serrated leaves, glabrous on the upper surface, not glandular and at most only slightly hairy beneath, the peduncles furnished with sessile glands, or with setæ and aciculi, or occasionally naked, the deciduous sepals naked or but slightly glandular on the back, the styles united in a more or less prominent column.

XII.*—R. arvensis. *Huds.* A bush only three or four feet in height if not supported, with long wide-spreading trailing rooting shoots, which are purple and bloomy when exposed. Prickles of the well-matured stem

* I ought to have explained before that what I am numbering in series which terminates here, are what I understand as species of primary value, of which I have seen specimens from the six northern counties of England.

Digitized by Google

uniform, the base three-eighths of an inch deep, the prickle about the same length, robust below and strongly hooked. Well developed leaves of the barren shoots from three and a half to four inches from the base to the apex of the terminal leaflet, which is usually obovate and rounded but little at the base, and measures about an inch long by from five eighths to three quarters of an inch broad. Leaflets dull green and glabrous on the upper surface, much paler and often glaucous beneath, almost naked, or hairy upon the midrib only, the teeth broad-based and not deep, and only casually double, the lower ones often gland-tipped, the petioles slightly hairy and setose and furnished usually with three or four slender falcate aciculi. Stipules and lanceolate bracts naked or very nearly so on the back, more or less densely fringed with setæ. Peduncles forming a close cluster when the shoot is at all well developed, much lengthened out but only spreading very little, purple in exposure, usually clothed densely with almost sessile purple glands, occasionally almost naked. Calyx tube varying from ovate or elliptical to subglobose, purplish and bloomy, naked or glandular just at the base, the segments usually not more than half an inch long, naked on the back, hardly dilated or leafy at the point, broad-bladed, and either entire or furnished only with one or two small linear entire pinnæ. Petals white, very rarely tinged to any considerable extent with red, considerably exceeding the sepals, the corolla measuring an inch and a half across, and spreading out widely when fully expanded. Styles in a prominent hairless column, which usually exceeds the stamens. Fruit varying from broadly ovate or elliptical to subglobose, not exceeding half an inch long, turning red in October, by which time the sepals have all fallen.

This is common in many parts of the north of England, but I have not seen it anywhere wild at an elevation of more than 200 yards, and in Scotland not from any further North than Kincardine. M. Dèsèglise applies the name *arvensis* to the *R. candida* of Scopoli, a closely allied plant, with solitary glandless peduncles, but there can be no doubt that what Hudson intended is our common York rose, which is the *R. arvensis* of De Candolle, the *R. repens* of Scopoli, Rau, and Reichenbach. A plant which has been gathered by Mr. T. R. A. Briggs in Devonshire, has much stronger and taller stems than in the type, in combination with more hairy leaves, roughly hairy petioles, and peduncles with more strongly stalked and more numerous glands. There can be I think but little doubt of the identity of *R. arvensis* of Borrer in Hooker's British Flora, with *R. bibrac-*

Digitized by Google

teata, Bast. The only British specimens I have seen were gathered near Henfield by Mr. Borrer. This has stronger stems than in the type, more spreading peduncles, and leaves shining upon the upper surface. The leaves are similar in shape to those of *R. arvensis*, but the sepals are longer, a little setoso-ciliated and somewhat more pinnate. As Mr. Borrer remarks of the English, so does M. Dèsèglise of the French plant, that it closely resembles the well-known *R. sempervirens* in habit and appearance, but in this the column of styles is hairy, and the leaves are evergreen. Our British *R. systyla*—the plant originally figured in English botany under the name of *R. collina*—was once supposed by Mr. Woods to be identical with Bastard's plant of this name, but afterwards both he and Mr. Borrer appear (see British flora) to have doubted their identity, and to have considered that this and the continental plants called *brevistyla*, *leucochroa*, and *fastigiata*, were really allied more closely to *R. arvensis*. I have had the opportunity lately of examining a considerable number of specimens labelled with these names by the continental botanists who are most likely to know how to apply them correctly, and my own impression is in favour of the identity of Bastard's plant with ours. In habit and appearance this latter resembles *canina* more than *arvensis*. The manner of growth is that of the former, the stems being eight or ten feet high, and the branches erecto-patent. The terminal leaflet is narrowly ovate or elliptical, the leaves being glabrous upon the upper surface, slightly hairy but not at all glandular beneath, and the serration usually as sharp and close as in the ordinary forms of the Dog Rose. The peduncles are almost always furnished, not with subsessile glands as in *arvensis*, but with aciculi and setæ, as in the *Rubiginosæ* or *Villosæ*. In one instance only, that of a specimen in Mr. Watson's collection, from Leigh Woods, near Bristol, gathered by Mr. H. O. Stephens, I have seen the plant with naked peduncles. The sepals are leafy at the point, and the more luxuriant ones are furnished with two or three erecto-patent leafy pinnæ. The petals are pink, and the fruit is ovate. The column of styles is very variable in length, ranging from hardly protruded to as long as in *R. arvensis*. I have seen it from Kent and Sussex northward to Worcester and westward to Bristol. M. Dèsèglise distinguishes *R. fastigiata* from *R. systyla* by its leaves more hairy beneath, sepals less pinnate, and less prominent column of styles. I have seen our British *R. systyla* with the column of styles as short as in the specimen of *R. fastigiata* with which M. Dèsèglise furnished me, but not with the leaves so hairy on the lower sur-

Digitized by Google

face. M. Boreau unites *systyla* and *fastigiata* together. *R. leucochroa* and *stylosa* have white flowers, and leaves more like those of *bibracteata* and *arvensis* than *canina*. Whether these are inhabitants of Britain still remains to be shown.

To conclude with a general summary of what has been advanced with regard to the affinities of the British species, we can perhaps best express their mutual relationship by a diagram, in which *canina* is placed in the centre of a circle, and the species which differ from it most at the circumference. The result will then be something like the following:—

mollissima. — *rubiginosa, micrantha.*

Jundzilliana.

tomentosa. — *sepium, cryptopoda, and Borreri.*

coriifolia. — *Caninæ subrubiginosæ.*

Sabini. — *canina.*

hibernica. — *systyla.*

spinossisima. — *bibracteata.* — *arvensis.*

As nearly as I can estimate, if we were to adopt with regard to the British Roses, a similar rendering of what constitutes a species to that employed by M. Dèsèglise, in his "Monograph" for France, the following would be the result:—

Spinosissimæ	8
Villosæ	6
Rubiginosæ	8
Caninæ	22
Systylæ	3
Total	47

Digitized by Google

NOTES ON THE ORNITHOLOGY OF NORFOLK.—VARIETIES.

By T. E. Gunn, Norwich.

The following notes on some of the more remarkable variations in the plumage of birds which I have (with a few exceptions) observed myself, as occurring in Norfolk of late years, will, I hope, prove acceptable to the readers of the "Naturalist."

The Kestrel—(*Falco Tinnunculus.*)—I have seen but one variety, which I described in the "Naturalist," No. 3, page 44.

Longeared Owl—(*Strix otus.*)—An immature male was obtained at Burgh, near Great Yarmouth, on the 3rd of July, 1861. Its head, neck, breast, and abdomen were white, intermixed with patches of its usual plumage, wings and tail partly white, upper wing coverts blotched with the same colour.

Spotted Flycatcher—(*Muscicapa grisola.*)—Last summer I noticed a very pale ash-coloured specimen. I also heard of an entirely white variety being obtained a short time since in the neighbourhood of Wymondham.

Fieldfare—(*Turdus pilaris.*)—One, a male bird, the back and upper surface of its wings and tail of a pale buff, marked with blotches of a darker tint, the breast and under surface of its body and wings of a cream colour, the feathers edged with a light reddish hue. I am not certain of the date and locality of its capture.

Thrush—(*Turdus musicus.*)—I observed a pure white specimen in September, 1862. A variety was shot at Stoke, near this city, on the 13th of November last, of which the following is a description:—crown of head, back, upper surface of the wings and tail of a light reddish brown; breast, abdomen, and the under surface of the wings, white; the breast sprinkled with spots of a pale reddish brown, bill and legs yellow. Another variety had the upper parts of its plumage of a pale yellowish brown, the feathers on the back and wings edged with a yellowish tint, throat and breast of a pale yellowish hue, speckled with spots of light brown, abdomen white. This variety was shot at Wreneningham, on the 11th of July.

Digitized by Google

BLACKBIRD—(*Turdus merula.*)—The piebald variety of *Turdus merula* is not of very unusual occurrence here. A few specimens are generally obtained every year. A male variety I noticed last year was marked with a ridge of white feathers, extending across the shoulders in the shape of a horseshoe; other specimens are variegated in a variety of ways, such as white heads, wings, tails, &c., the remaining part of their plumage being of its usual colour; the plumage of others is sometimes speckled all over with small patches of white. A curious variety, a male, the whole surface of its plumage being of a reddish brown, was shot at Foulsham, September 20th, 1862. Another variety, a male, having the upper surface of its plumage of a light buff, and the under surface of a cream-colour, was shot at Westwick, February 8th, 1862. A second occurred about the middle of December in the same year. A splendid pure white specimen was taken at Shottisham, near Norwich, in November last. In the summer of 1861, a friend shewed me a nest of young blackbirds, five in number, the plumage of two were white, (having just moulted their first feathers,) the remaining three were of the usual colour, as were also the parent birds. He had had opportunities of watching them very often.

HEDGESPARROW—(*Accentor modularis.*)—A male was shot at Eaton, near Norwich, December 31st, 1862, mottled with white, chiefly about the head and upper parts of its plumage. A second variety was taken at Saxlingham, December 19th, 1863, the plumage being of a yellowish brown on the upper parts, the under surface of a pale slate colour, inclining to greyish under the throat.

ROBIN—(*Sylvia rubecula.*)—Two varieties were obtained in this neighbourhood in the winter of 1859. One of them was of a bluish slate colour, lighter on the breast and abdomen; the other was white, mottled with small patches of its usual plumage.

WHEATEAR—(*Sylvia œnanthe.*)—Towards the latter part of last summer I noticed a specimen of this bird of a very pale ash grey on the upper surface, and of a dull white on the under parts of its plumage.

WILLOW WREN—(*Sylvia trochilus.*)—An immature male was shot in the neighbourhood of Gunton, in August, 1861, of a uniform pale yellow, inclining to a straw yellow on the under parts of its plumage, bill and legs straw yellow.

SKY LARK—(*Alauda arvensis.*)—I have seen an individual whose plumage (through being confined for several years) had become quite a brownish black. I have noticed pale buff, and also variegated varieties. An

Digitized by Google

immature male of the latter kind was shot on the beach at Cromer in the autumn of 1861. Two years since an albino specimen with entire white plumage, bill and legs straw yellow, and eyes pink, was taken near North Walsham.

COMMON BUNTING—(*Emberiza miliaria.*)—Two varieties were taken in this locality, in November, 1862, the whole plumage of one being of a uniform cream colour, with the exception of a few dark feathers scattered over the back and upper surface of its wings: the other specimen was mottled with small patches of white.

BLACKHEADED BUNTING—(*Emberiza schæniclus.*)—A pied variety was shot in 1860, on the Heigham Marshes, near this city.

YELLOWHAMMER—(*Emberiza citrinella.*)—Of this species I have observed three varieties. One of a dark chocolate colour, which had been kept alive; the second having the back and wings light reddish brown, throat, breast, and belly of a pale sulphur colour; and the third white. The two latter specimens were taken in this neighbourhood.

CHAFFINCH—(*Fringilla cœlebs.*)—The following is the description of a variety I observed four years since; crown of head white, with a small patch of bluish slate colour in the centre, neck and throat white, cheeks slightly tinged with a light brown, back and upper wing coverts of a pale yellow, intermixed with light brown and white, wings and tail white, with the exception of a few feathers in the former and the two centre feathers in the latter, which were pale brown, breast of a reddish and slate coloured tint, abdomen white, tinged with a very pale reddish hue. A specimen similar in description to the above was kept alive for two years by a person residing in this city; it died but a short time since.

HOUSE SPARROW—(*Fringilla domestica.*)—In March, 1860, a dark chocolate variety was obtained, as also a buff coloured variety; the latter was taken by a friend in this neighbourhood, and is now in my possession. The following variety was shot at Cantley on the 25th of August; the upper parts of its plumage of a rich cream colour, marked with a few faint bars of a reddish hue, the under surface of a pale cream colour approaching to white. The pied birds are not unfrequently met with, a few specimens generally occurring every year. A pure white variety was shot at Hethersett, last December; a second was obtained at East Tudenham about three weeks since; both the latter-mentioned varieties had pink eyes.

GREENFINCH—(*Fringilla chloris.*)—A pale green variety was obtained near Norwich in the winter of 1860.

Digitized by Google

GOLDFINCH—(*Fringilla carduelis.*)—An immature specimen was caught at Hellesdon, last November, its back being of a pale buff, cheeks and the under surface of its plumage white, slightly tinged with a pale yellowish hue at each side of its breast, the crown of the head and the wings of their usual colour.

LINNET—(*Fringilla cannabina.*)—A birdcatcher being out with his nets in the neighbourhood of Costessey one day last winter, noticed amongst a flock of these birds, a peculiar specimen, which he, after a short time, succeeded in obtaining possession of; it proved to be a male bird, with a band of white feathers extending quite round its neck, having the appearance of a collar at a distance.

MEALY REDPOLE—(*Fringilla borealis.*)—During the latter part of the year 1857, a white variety of *Fringilla borealis* intermixed with markings of its usual plumage was obtained on the Heigham Caucer, near this city.

LESSER REDPOLE—(*Fringilla linaria.*)—I have often observed the plumage of this, as also of the preceding species (when in confinement,) attain a yellowish hue, instead of the deep rose tint observed in specimens (adults,) when fresh captured, or after their first moult while confined. I have never heard of an instance of their regaining the rose tint after once losing it.

BULLFINCH—(*Loxia pyrrhula.*)—A birdcatcher informs me he caught a male specimen several years since, one side of the breast of which was of a pure white, the other side of its natural colour.

STARLING—(*Sturnus vulgaris.*)—A cream coloured variety was observed amongst a flock of these birds during last winter.

CROW—(*Corvus corone.*)—A pied variety, an immature specimen, was shot in this locality about the latter end of July, 1861.

ROOK—(*Corvus frugilegus.*)—I have seen buff and cream coloured varieties. A specimen of the latter was shot at Aylsham in 1858. I have likewise observed two or three nice piebald varieties, but am not certain as regards the date and locality of their occurrence.

JACKDAW—(*Corvus monedula.*)—One, a piebald variety, was shot in June, 1861, in this locality, an adult male.

GREEN WOODPECKER—(*Picus viridis.*)—I have in my possession an adult male, obtained near Wymondham, about four months since; the two centre feathers in its tail, and the tips of the four longest quill feathers in each wing are of a pale brown: this is the only variation in the plumage of this species I ever noticed.

Digitized by Google

Cuckoo—(*Cuculus canorus.*)—Am immature female, shot at Beeston Regis, near Cromer, on August 6th, 1862, had the whole surface of its plumage mottled with patches of white, more particularly about the back and breast.

Sand Martin—(*Hirundo riparia.*)—Two cream coloured varieties have occurred, one shot at Eaton, near Norwich, in the latter part of August, 1860; the second obtained on the 20th of September, in the following year, in the neighbourhood of Weasenham; both of them were immature specimens.

Nightjar—(*Caprimulgus europæus.*)—A nice pied variety, an adult male, was taken in the summer of 1859, at Melton Constable.

Ring Dove—(*Columba palumbus.*)—In the autumn of 1861 a specimen was obtained at Hoveton, of a cream colour, marked with blotches of a pale slate colour on the upper surface of its plumage. I am informed, by a friend, that Mr. T. Ellis, Naturalist, of Swafham, had in his possession, a pure white specimen, obtained a few years since near the above-named place.

Partridge—(*Perdix cinerea.*)—Specimens mottled with patches of cream colour and light buff have occurred in several instances during the shooting seasons, at Westwick, near North Walsham.

Redlegged Partridge—(*Perdix rubra.*)—A male bird was shot in the neighbourhood last September, having part of its breast of a pure white.

Moorhen—(*Gallinula chloropus.*)—A curious variety of this bird was shot by a person named Drake, on the meadows at Trowse, near Norwich, in the winter of 1862. The whole surface of its plumage was of a complete yellowish hue, rather lighter on the breast, sides, and abdomen.

Wild Duck—(*Anas boschas.*)—During last January a variety of *Anas boschas* was obtained at Ranworth, the whole surface of its plumage being of a pale buff, lighter on the under surface; a few patches of its usual plumage were scattered over the upper surface.

Norwich, July 20th, 1864.

Digitized by Google

DWARFISM AND ATROPHY.

By M. François Crepin,

Professor of Botany à "l'Ecole d'Horticulture," Gand.

The florist, and above all, the monographist, with mind absorbed in details, too often loses sight of certain general facts of great importance. Amongst plants there exist two causes, the effects of which frequently mask the veritable characters of species. I refer to Dwarfism *(nanisme)* and Atrophy, which are opposed to "excessive development" *(geantisme,)* and Hypertrophy. In fact, under certain conditions, plants decrease considerably in height, their vegetative organs shrink, the stems and branches lose their habitual dimensions, the inflorescence is modified in its details, and certain floral organs are abortive or atrophied. These changes may take place owing to a too dry and arid soil, to a situation too much exposed to the sun, or too shady. On the other hand, on land too fertile, in a fresh and shady place, or more particularly in the neighbourhood of the sea, the same plant may be modified in a contrary direction.

In default of taking into account these general causes of variation, botanists are misled into describing as distinct species, forms simply affected by atrophy or hypertrophy,—*dwarfs* or *giants*. Neglecting the attentive examination of *habitats*, they afterwards discover in dried specimens, divergences which they cannot explain, except by an innate difference in the objects themselves: they take no account either of soil or humidity, dryness, shade, &c., and thus take for a distinctive character what is but an accident to an individual plant. We might mention numerous species created in this manner, with varieties dwarfed or developed more than ordinarily.

As I have already stated, an excess of development or impoverishment frequently brings in its train quite a suite of differences, which would almost make us believe it a separate and distinct species, if not on our guard against modifying causes. This series of differences, which appears to make a complete series of excellent specific characters, constitutes at the bottom of it but one simple divergence repeated in all the similar organs, and at once disappears from all these if the modifying causes are overcome and removed. At first sight descriptions of these critical forms, wrongly elevated to the rank of species, appears to include equally differential

Digitized by Google

characters, with those of true species, but an experienced eye soon perceives that this is an error, and that a single cause has alone produced all the differences.

Again a fifth cause, allied more or less closely to giantism or hypertrophy, profoundly modifies the *facies* of specific types—disjunction—that is to say, the division more or less deep of the foliaceous or floral organs. What multitudes of new species have we not seen created in our own days from variations due to disjunction! It may be objected that the theory which I have here broached, is not founded upon any positive experiment, that it is based only on hypothesis, and that a contrary hypothesis may with equal reason hold good. If I have advanced this theory, it is only because I believe it to be supported both by the observation of facts in nature, and by certain experiments which appear to me conclusive. For the rest it is not new; already have some of our highest *savans* advanced it; but they, going too far in their deductions, have materially compromised the cause of truth, and their antagonists have thus rejected all which they have premised, confounding facts with hypotheses and problematical ideas. One thing which still retards the acceptance of these principles of deduction, is the manner in which certain botanists of advanced age systematically oppose the dismemberment of the infinity of old species, rushing into the opposite excess of re-uniting under the same name, many excellent types which certainly ought to remain distinct, and which will do so in spite of them, because they are true types.

Rochefort, 17*th Aug.*, 1864.

FLOWERS IN TEESDALE IN JUNE.

By T. W. Gissing.

Although Teesdale is a district that has been pretty well worked botanically, it may be interesting to some collectors, more particularly the younger ones, to know what plants were to be found in flower there at the beginning of last June. I have only given localities in a very general way, because of the unscrupulous abuse of the knowledge of the exact place of growth by some men, who, from their position and botanical knowledge, ought to be more careful of their own reputation, and of the

Digitized by Google

preservation of British plants. Some men who often visit the Teesdale district, are absolutely disliked by the natives, on account of their greedy ways—they even go so far as to *eradicate* a plant rather than leave it for some one else to find. They are described by one or two local botanists (not *collectors*,) as "cunning, greedy old men."

I may say that the course of our journey was, from Barnard Castle, through Lartington, Cotherstone, and Romaldkirk, to the turnpike before crossing the Tees to enter Middleton-in-Teesdale, thence on the Yorkshire side of the river, by Crossthwaite Scars, through Holwick, by Holwick Scars, and across the meadows to Winch Bridge (which, by the way, is not marked on the Ordnance Map,) then for a short distance up the bed of the Tees, crossing to the Durham side, and along the high road to High Force Inn, thence through the woods to High Force, crossing the river above the fall into Yorkshire, and down about a mile to the foot bridge, and back to High Force Inn.

This was our first day. On the second we left the inn and kept to the road for somewhat over a mile, then turning into the enclosed pastures, keeping to the Durham side of the Tees, we passed Cronkley Bridge, under Cronkley Scars, along Widdy Bank, up the front and over the top of Falcon Clints, dropping down to Cauldron Snout, close to which is the junction of Yorkshire, Durham, and Westmoreland, these counties being separated by Maizebeck and the Tees. Here we crossed by the foot bridge half way down Cauldron Snout into Westmoreland, and then over Maizebeck again into Yorkshire, thence over Cronkley Fell down to White Force (now dry) and the Tees, on by the river to the top of High Force, over again into Durham and up through the woods to High Force Inn. Our walk this day was shortened by a heavy storm that came on about noon, and wetted us all to the skin. In the evening (after partial drying) we rode to Barnard Castle to sleep.

On the third day we walked along the Durham side of the Tees to the "Pay Bridge," (as it is locally called,) just below Egglestone Abbey, crossed to see the Abbey, and then kept along the road to the corner of Rokeby Park, thence by the river side to the junction of the Tees and Greta, over the stone bridge by "The Dairy," past Mortham Tower, and down to Greta Bridge, which looks deserted and smells of mould and decay; by Tutta Beck, past the Roman Camp, back to the Greta, and along the bed of the river to Brignall, passing on our way the very lovely ruins of the old church, with the little square walled-in churchyard, and the

Digitized by Google

graves hidden in the long rank grass. Then, on through the wood by Scargill Cliff and Brignall Banks out into the open meadows, and finally back into the Roman Road (which we left at Greta Bridge,) and up to Bowes, where we saw "Do-the-boys Hall," and dined, and then by rail to Wakefield.

The following list contains only plants that are not common in almost every district, and only those found in flower.

Geum rivale, from Greta Bridge up the valley.

G. intermedium, occasionally.

Gentiana verna, about Cronkley, much less abundant than I expected.

Potentilla fruticosa, very abundant about High Force.

Thalictrum alpinum, Cronkley Fell.

Trollius europæus, very abundant. Apparently taking the place of common species of *Ranunculus*.

Cardamine amara, occasionally.

Helianthemun canum, Cronkley Fell.

Viola palustris, frequent.

V. lutea, very abundant, and all shades of colour, from deep purple to bright yellow.

Arenaria verna, frequent.

Geranium sylvaticum, common.

G. lucidum, frequent, but not abundant.

Anthyllis vulneraria, frequent.

Prunus Padus, frequent.

Dryas octopetala, very sparingly on Cronkley Fell.

Sanguisorba officinalis, frequent.

Pyrus Aria, very frequent.

P. aucuparia, frequent.

Ribes Grossularia, apparently truly wild, occurring very far from either cultivation or habitation.

Saxifraga granulata, frequent.

S. hypnoides, frequent.

S. tridactylites, frequent.

S. stellaris, sparingly, near Falcon Clints.

S. aizoides, frequent.

Chrysosplenium alternifolium, sparingly.

Myrrhis odorata, abundant.

Galium boreale, Banks of the Tees.

Gnaphalium dioicum, frequent.

Campanula glomerata, near Barnard Castle.

Menyanthes trifoliata, occasionally.

Veronica montana, frequent.

Bartsia alpina, Cronkley and Widdy Bank.

Pedicularis palustris, frequent.

Myosotis sylvatica, frequent.

Pinguicula vulgaris, frequent.

Primula farinosa, abundant.

Chenopodium Bonus-Henricus, frequent.

Polygonum viviparum, very sparingly.

Juniperus communis, abundant and remarkably fine.

Digitized by Google

Tofieldia palustris, plentiful in a few places.
Eriophorum vaginatum, frequent.
Carex capillaris, Widdy Bank, &c.
Polypodium Dryopteris, frequent.
P. Phegopteris, frequent.
Allosurus crispus, frequent.
Asplenium viride, Falcon Clints.
Lycopodium alpinum, frequent.
L. Selago, frequent.
L. selaginoides, frequent.
Equisetum variegatum, Winch Bridge.

Woodsia and *Polystichum Lonchitis may* still be found in inaccessible places, but from my experience they have both disappeared from all parts easily and safely scaled.

Wakefield, August 4th, 1864.

NOTES ON A FEW PLANTS OBSERVED AT OR NEAR BISHAM AND GREAT MARLOW, DURING JULY AND AUGUST, 1864.

By J. C. Melville.

As I have been residing at Great Marlow for the last two months, I have had a good opportunity for making researches amongst the wild plants of the neighbourhood; and since Mr. Britten, a few months ago, kindly favoured the "Naturalist" with an account of his spring explorations at little Marlow (about three miles distant,) these notes may form a kind of supplement or continuation to his treatise.

The Thames is as rich in its aquatic plants as it is in its fish. Marlow has been called the very paradise of the Thames angler, and rightly, too; and the same place might be called the paradise of Thames aquatic plants. First and foremost comes *Villarsia nymphæhoides*, prized no less for its beauty than for its scarcity, which grows near Quarry Wood. It never grows in the main stream of the river, but in little secluded nooks; it is seldom or ever found wild except in the Thames, for, since it is cultivated with so much ease, it is frequently transplanted into ornamental water, &c. I found also several plants of *Sparganium simplex*, near the railway bridge at Marlow Road, floating, as it were, in the middle of the stream.

Along the banks of the Thames, many plants grow that cannot fail to excite notice. One of the most prominent of these is *Geranium pratense*, which I have met with in three or four places by the river. At

Digitized by Google

Harley Ford it grows in the greatest profusion, as well as in the Bisham Woods. It is rivalled in beauty by the handsome *Lysimachia vulgaris*, which occurs abundantly. *Sium latifolium*, with its large umbels of white flowers, and broad leaves, is not unfrequent at Great Marlow, and towards Henley. I had the satisfaction of finding *Nasturtium sylvestre* on the banks of the river, by Quarry Wood; it is a rare plant. Before we leave the river side there are two more plants worthy of notice, viz.:—*Butomus umbellatus*, which occurs near Bisham Abbey, on the water side; it is rare here, though abundant in some parts of the country: and *Acorus calamus*, with its curious spikes, and sweet odour; it grows with *Butomus*. In the Bisham woods I found *Atropa Belladonna* growing luxuriantly with its lurid flowers and tempting, noxious berries. *Hypericum montanum* is frequent here likewise, and *H. androsæmum* is occasionally found in the woods. *Epipactis latifolia* and *E. grandiflora* are both to be met with; indeed, the former is very common here. On a bank, between Parmoor and Lane End, *Erigeron acris* opens its purplish little flowers, and in the same place *Gentiana Amarella var. germanica* grows with very large dark blue flowers. The common *G. Amarella* is to be met with in the Bisham woods. The rayed variety of *Centaurea nigra* is more frequent here than the common *C. nigra*: has it been ascertained yet whether they are both one species? In a marsh, at Lane End, almost dried up this year, owing to the drought, *Scutellaria minor* grew in company with *Anagallis tenella*. I was informed that *Hypericum elodes* usually occurred there, but it has disappeared this year, owing to the want of moisture. *Epipactis palustris* was to be found very sparingly hard by, so I was informed, but I could not see any specimens. In a wood, at Parmoor, *Pyrola media*, grew very scarcely. Upon an embankment, at Danesfield, by the bridge that crosses the road there, *Campanula Rapunculus* grows evidently wild, together with the white-flowered variety of *C. rotundifolia*. At the same place I found *Epilobium angustifolium*. This also occurs in the Bisham woods. In hedges at Hednor, *Astragalus glycyphyllos* puts forth its greenish white flowers. This plant is called Wild Liquorice, from its root tasting somewhat like that commodity. In a stagnant ditch (full of *Anacharis*,) which runs by the footpath behind Court Garden, Great Marlow, *Hydrocharis Morsus-ranæ* is to be found, and *Calamintha officinalis* is not unfrequent in the neighbourhood. Near the Ray Mills, Maidenhead, I found *Nepeta Cataria* and *Lycopsis arvensis*. This is a summary of the many plants I have found here during the last two months.

Digitized by Google

Observations.

Loxia curvirostra, &c.—I dare say it will not be uninteresting to lovers of Ornithology to learn that I have a very fine specimen of *Loxia curvirostra* (Lin.) alive. His colours are remarkably bright, and he is very tame, considering the short time he has been in captivity. Concerning this bird I have heard a curious story, namely, that it changes to quite a different hue after every moult. I was assured that my bird, which is at present quite orange-coloured, will moult green. I went to one or two bird-fanciers in London about it, and was assured that such was the case. I can hardly believe this, and should be glad to hear of any cases similar through your interesting paper. Among my other pets I may mention a specimen of *Fringilla spinus* (Lin.) which has just got through its moult and has turned out a beauty. I am considered most fortunate in having brought him safely through the summer, and was told that he was worth half-a-guinea. I would not take three times that sum, for he is the tamest of birds and will go through a number of tricks. He is undoubtedly the brightest I ever saw, and being a good call-bird I hope with the aid of my cages and other traps to catch a good many, as they are plentiful among the alder trees at Cookham in the winter. Last week a fine male specimen of *Columba turtur* (Lin.) was shot and stuffed by Mr. Briggs of Formosa, and is at present in my possession. A pair of *Picus minor* (Lin.) have built in a high elm tree in the beautiful grounds of Formosa, near Cookham, in the possession of G. de Vitrè, Esq. A few years ago a pair built in the same neighbourhood and the nest was taken by Mr. Briggs, the gardener, for the celebrated Mr. Gould. He climed a tree seventy feet high and sawed off the branch which contained the nest, and let it down from that height to the ground, a most perilous feat. A fine young male of *Cuculus canorus* (Lin.) was shot on the 28th of July, and was stuffed by the above-named Mr. Briggs, and is at present in my possession.—R. B. Sharpe.

Ornithological Notes from Norfolk.—I had sent me recently an exquisitely fine pair of adult Hen Harriers (*Falco cyaneus*, Lin.,) shot in Wales, and from this neighbourhood a nice clean example of the Whimbrel (*Numenius phœopus*, Lath.,) which appear to have returned from their northern breeding stations, as I have seen several pairs upon our beach. The specimens under consideration have commenced moulting, as has the Dunlin. I find the two species named, and a few Blackheaded Gulls (*Larus ridibundus*, Lin.,) are

Digitized by Google

the only signs of approaching autumnal migration I have yet discovered upon the shore.—S. P. Saville, King's Lynn, Norfolk.

Ripiphorus paradoxus.—I have fortunately succeeded this summer in obtaining both larvæ and pupæ of this insect. On opening a cell of *Vespa vulgaris* on Saturday morning last, I found a larva of the parasite firmly adhering to the spun up larva of the wasp, which before yesterday (Monday) morning it entirely consumed, with the exception of the skin and mandibles, although it had made comparatively little progress in the work of destruction at the time I opened the cell. From other cells in the same nest I obtained examples of the parasite in the pupa, as well as in the perfect state.—S. Stone, Brighthampton, August 23, 1864.

Bee Keeping.—I am a strong advocate for depriving bees of their honey without injury to the swarm, and I think some of your readers may be glad to know my method, which is extremely simple. I use straw double-hives, which are very inexpensive, and cool for the bees in summer; in the afternoon, about four o'clock of a dull day in August, I take the upper part of a hive, (put a cork in the hole of communication) and put it down in a cool place near the hive, in a few hours *all* the bees leave it and return to the hive; when I cut out the comb, remove the cork, and replace the top. This year has been unfavourable for bees, I think owing to the drought; the yield of my hives is not half what it should be. Hoping you may find space for these lines in your interesting work. —Charles Henry Lane, Clifton, August 23rd.

Acherontia atropos.—A large male specimen of this insect flew on board last night and was captured by one of the men; we were about thirty miles out to sea at the time, off the Start Point, and had been at sea for two days, so I think it very probable that this individual was crossing the channel one way or the other and our lights attracted it. It is now on one of my setting boards, and notwithstanding the rough handling it has received is in pretty good condition. The weather last night was calm and fine.—G. F. Mathews, H.M.S. Warrior, August 29th.

List of Plants Seen about Hampton Court and the Neighbourhood, on August 6th, 1864.

Nymphæa alba, ditch at Walton Bridge.

Nasturtium sylvestre, Walton, river side.

Reseda Luteola, near Walton and Hampton Court.

Digitized by Google

Malachium aquaticum, river side, between Hampton Court and Walton.

Hypericum perforatum, hedges and ditches between Hampton Court and Walton.

Geranium pratense, near the towing path between Walton and Hampton Court, especially near Sunbury.

Trifolium fragiferum, river side, near Walton.

Bryonia dioica, hedges, between Hampton Court and Walton.

Dipsacus sylvestris, along the towing path between Hampton Court and Walton.

Epilobium hirsutum, along the river side between Hampton and Walton.

Lythrum Salicaria, between Walton and Hampton, along the river side.

Scabiosa Columbaria, between Walton and Hampton Court.

Sium latifolium, by a ditch at Walton Bridge.

Cichorium Intybus, road side, near Walton.

Tanacetum vulgare, near Sunbury.

Lysimachia vulgaris, river side, near Sunbury.

Mentha aquatica, river side, between Hampton Court and Walton.

Scutellaria galericulata, river side, Hampton Court.

Villarsia nymphæoides, Walton-Bridge.

Polygonum amphibium, river side, near Hampton Court.

Humulus Lupulus, by the towing path, near Sunbury.

Acorus Calamus, in a ditch, near the Thames, at Walton Bridge, and in several places by the river side, between Walton and Hampton Court.

Sagittaria sagitifolia, in a ditch by the Thames, at Walton Bridge.

Anacharis Alsinastrum, in a ditch by the Thames at Walton Bridge.

JAMES IRVINE, 28, Upper Manor Street, Chelsea.

Asperula taurina, &c.—This plant was discovered in this neighbourhood about two years ago. It occurs in two localities, in neither of which is it plentiful. Both stations are among trees, and lie about equally distant from the city of Perth, viz. three and a half miles, one at Murrayshall, north-east, and the other at the south side of Moncrieffe Hill, south-west. I was not the original discoverer of this rare plant in either place, it was a young schoolmaster, but not a botanist, who, though a lover of flowers, knew not the name of this interesting plant, and therefore brought it to me for identification. I will not dispute the point as to whether this plant is native or introduced, to me it appears to be the former, but others may come to a different conclusion. It is easy of cultivation, and, like its congener *A. odorata*, if once planted requires neither care nor keeping, and will maintain its position and grow and

Digitized by Google

multiply enormously. Of this I have proof positive, having planted in my garden a fragment of it two years ago; it now occupies a large space and had this season a profusion of leaves, stems, and blossoms. I should like to see the history of this little plant recorded from its English localities. Is there any contributor to the "Naturalist" who knows any thing certain about its English habitats? Perth is certainly remarkable for rare plants, how such a number of beautiful and interesting flowers could have become established in this neighbourhood is to me a perfect mystery. To believe they are all indigenous may to many seem quite preposterous, to believe they have all been introduced seems to me even more absurd; especially as no motive whatever can reasonably be alleged for their introduction. The beautiful and fragrant Wallflower is by many believed not to be indigenous to any part of the British Isles. Here it adorns the rugged and precipitous cliffs of Kinnoul Hill in great profusion in early summer, dispensing fragrance and beauty all around. I maintain that no unprejudiced observer can view the Wallflower on the rocks at Kionnul Hill and affirm that it could have been introduced by human agency; such a supposition is directly opposed to reason, because where this lovely plant grows most largely human foot never did nor can tread. The same remark is applicable to *Antirrhinum majus*, which also occupies the face of the rugged cliff high in air beyond the reach of human hand. These are facts not to be disputed. How can the existence of these plants be accounted for, far removed from human habitation and unapproachable by mortal man,—save that they or their progenitors have been in possession of this rugged rock ever since Kinnoul Hill assumed its present form and condition.—JOHN SIM, Bridge End, Perth, August, 1864.

NOTES ON A DOUBLE INULA DYSENTERICA.

The other day my friend Mr. Roberts and myself being out botanising in the neighbourhood of Burton Salmon, found among other plants a vast quantity of *Inula dysenterica*. One plant especially arrested our attention, on account of the superior size and gay colour of its flowers. I plucked a specimen, and found that its superior beauty was caused by a change which its florets had undergone. In our gardens we have many syngenesious or composite plants, as Dahlia, Marigold, &c., which are prized by florists in proportion to the amount of *doubling*, as they call it. This term, as applied to this class of plants, is certainly improper, though I know no other term by which in common

Digitized by Google

parlance this metamorphosis may be expressed.

In certain tribes of plants possessing *many stamens*, as for example, *Ranunculaceæ*, *Rosaceæ*, &c., the stamens, by cultivation are transformed into petals, and thus the petals become doubled over and over again, till, in the language of the florist, the flower is perfect, that is, all the stamens have undergone this change. This may truly be called doubling.

The flower of the composite plant is made up of a great number of small flowers, arranged on a capitulum or head. Many of these plants, as the Daisy, &c., possess two kinds of florets, viz., tubular and ligulate or strap shaped. The tubular florets are generally very small and inconspicuous. They occupy the *centre* of the head, and form the *disc*. The strap-shaped florets are much larger and gayer in appearance. They occupy the margin of the head and form the *ray*. Now, when under cultivation, and sometimes in a wild state, as in the present instance, the tubular florets of the disc—begining with those next the ray—become larger and ligulate, thus increasing the number of whorls in the ray, and rendering the flower more handsome and conspicuous. It will be seen that this doubling of the whorls of the ray florets is totally different from the doubling in those plants previously alluded to. There is no increase in the number of petals, as in them, but simply a change of tubular into ligulate florets. To use the same term then to express changes so totally dissimilar is, to say the least, to cause much misapprehension and confusion.

In the specimen under our notice the ligulate whorls were increased from one to six or seven, and the flower was thereby rendered really handsome and imposing. We met with no other instance of the kind though the plant was there truly abundant.

To the professed botanist these few remarks will convey no new information, but I am aware that incipient and non-botanists have very vague and imperfect notions of the change which takes place in these plants, and to them—and to such I write—these remarks may prove acceptable.

We collected about twenty species of plants, the majority of which are not found in this locality. I should have enclosed a list but find that my friend, Mr. G. Roberts, who has visited the district three or four times this season, is preparing a list of all the plants that he has taken this season, and with them will be incorporated our recent captures.—John Hepworth, Lofthouse, Wakefield, September 30th, 1864.

Digitized by Google

Original Articles.

NOTES ON A FEW MORE BUCKINGHAMSHIRE RARITIES.

JULY, 1864.

BY JAMES BRITTEN.

(Concluded from page 141.)

On another occasion I went to Taplow, about ten miles from Wycombe, to meet a friend from London. While waiting here, I looked about me, and observed *Corydalis lutea* in considerable abundance on a wall; a locality which is open to suspicion. *Erysimum cheiranthoides* appeared here and there by the roadsides, but in no great quantity; and a small meadow was completely filled with *Armoracia rusticana*, a plant which, if not an original native, must have held its ground for very many years. The railway embankment produced *Erigeron acris* in some quantity, with the small form of *Melilotus officinalis* known to some botanists as *M. arvensis*, but which does not appear to be the species usually intended by that name: and in some old, and apparently disused pits, *Trifolium arvense* was abundant, with *Erigeron acris* and *Echium vulgare*, the last very bright and beautiful. *Linaria spuria* occurred in the cornfields, and in a ditch near the Thames I noticed several plants of *Sparganium natans*; this terminated my observations in this neighbourhood.

A very profitable day was the one which I spent at Medmenham. At Danesfield, on the left-hand bank going from Marlow, and at some distance from the house, was *Campanula Rapunculus*, growing in some plenty, though extending over but a small space of ground. With it was *Epilobium angustifolium*, and this occurred at intervals for a considerable distance. Further on, at the top of the bank on the right of the road just beyond the bridge which crosses the latter, was a large patch of *Hypericum calycinum*, and near this two rare Sedums, *S. dasyphyllum* and *S. sexangulare*, together with another not mentioned in our Floras, but which appeared something like the garden *S. oppositifolium*, from which it differed in having red flowers. The occurrence of four such suspicious characters in close proximity forces the opinion that they must here have been introduced, though there was no apparent trace of such introduction. The three Sedums were in but small quantity, each having about six flowering

Digitized by Google

stems; they were growing at the top of the very steep bank, in an almost inaccessible situation. The next plant noticed was *Hypericum montanum*, which occurred sparingly by the roadside: here, as elsewhere, *H. hirsutum* was abundant, and *Epilobium angustifolium* formed brilliant patches of colour. In the cornfields *Linaria Elatine*, *L. spuria*, and *Iberis amara* were observed, the last very plentiful. In the wood which overhangs the road near Medmenham Church, *Iris fœtidissima* was abundant, but not a flower remained to gratify my hopes of collecting it, though none of the plants had advanced far towards seed. *Hypericum montanum* appeared here, with *Chlora perfoliata* and *Erythræa Centaurium* and I also noticed two or three young plants of *Atropa Belladonna*. In a pit at the bottom of the wood, near the road, *Reseda luteola* grew very luxuriantly, some of the specimens being at least six feet high: in this neighbourhood this species is less common than *R. lutea*. The chalky banks outside the wood afforded *Asperula cynanchica*, *Hippocrepis comosa*, *Gentiana Amarella* or *germanica*, and other more common species. On an old wall near Medmenham church, were a few plants of *Pyrethrum Parthenium*, a species which, in common with a few others, seems to delight in placing itself in so-called suspicious localities; *Borago officinalis* grows here by the roadside. On arriving at the river, I observed a patch of *Butomus umbellatus*, but was informed that it had been planted: *Acorus Calamus* was abundant all along the river side, but not a single specimen was in blossom. In walking along the bank towards New Lock, I suddenly came upon a piece of still water, separated from the main stream by a large bed of rushes; here the vegetation was most luxuriant and varied. The large dark-green leaves of *Nymphæa alba*, mingled with the small ones of *Nuphar lutea*, and set off by the magnificent white and yellow flowers of both, the elegant pink spikes of the floating *Polygonum amphibium*, with the large white ones of *Sagittaria sagittifolia*, the overhanging branches of the willows, and the tall graceful reeds, gave to the scene an air of almost tropical luxuriance, enabling me to realize, in some faint measure, the glories of the New World rivers. Here, too, was a large patch of the lovely and rare *Villarsia nymphæoides*, its delicately fringed blossoms opened wide in the sunlight: I subsequently met with it further down the river, not very far from Marlow Lock. The beauty of this plant is quite lost in the drying, as the divisions of the corolla are concave, and it is therefore impossible to preserve successfully the fringe which is so beautiful. A *Chara* was observed here on the roots of a tree. On arriving at the open river, I was much struck with the quiet

Digitized by Google

beauty of the surrounding scenery. The banks were still gay with *Eupatorium cannabinum*, *Hypericum quadrangulum*, *Lythrum Salicaria*, and *Lysimachia vulgaris*, which last is cultivated in London gardens under the name of "Orange Bovena," and is there considered quite a new plant. A ditch in the meadow, shortly before arriving at Danesfield, was full of *Sagittaria sagittæfolia* and *Anacharis Alsinastrum*, both blossoming profusely: I have noticed that the lower leaves of the former, when growing in running water, become nearly linear, and entirely lose the shape of an arrow, which gives the plant its name. At Danesfield, a notice warns the wanderer that the footpath there becomes private property, so I was reluctantly forced to turn back, but not before I had taken a peep into the forbidden ground, and espied *Conium maculatum* in some plenty. This plant appears from the 'Cybele' to be found throughout the kingdom, but I do not think it is really a common species: the strong smell of mice which adheres to it, well distinguishes it from any other member of the Umbelliferæ. Going from Medmenham in the other direction, towards Harleyford, a peculiar variety of *Lysimachia vulgaris* was observed. The truss of flowers was very much smaller, and the bottom of each blossom was of a deep orange colour: four or five plants growing together exhibited this peculiarity. A variety of *Solanum Dulcamara* having pure white blossoms, was also noticed: *Sparganium natans* occurs all along in the river between here and Marlow Road. After this I returned home, well satisfied with my day's excursion.

In a walk from Wycombe to Totteridge, a variety of *Centaurea Scabiosa* occurred, having pure white flowers. In a field of saintfoin, I was very much pleased to find two fine plants of *Adonis autumnalis*, and I have no doubt that there were others in the same locality, as I did not examine the ground thoroughly: this is an interesting addition to the rarities of this neighbourhood. On Totteridge Common, *Hyoscyamus niger* occurred sparingly; it has been here for at least four years. Between Wycombe and Handy Cross, the fields supply the three *Linariæ* before-mentioned, with *Iberis amara* and *Galeopsis Ladanum*. In a hedge, *G. Tetrahit* was noticed: this is the rarer species hereabouts, though it occurs with white flowers in Bisham Wood. By the roadside, before arriving at Handy Cross, *Dipsacus pilosus* grows sparingly; the hedge has this year been cut, and I only observed one root of the plant; but in 1861 there were several, though I have never seen it hereabouts but in this locality. At Booker, *Sedum Telephium* occurs in a hedge; and at Whittington Park, some distance further on, were *Epipactis latifolia*, *Scabiosa Columbaria*, &c.; *Blechnum*

Digitized by Google

spicant, *Lastræa spinulosa*, and *Equisetum sylvaticum* are particularly fine here. On a common just out of this wood, *Ranunculus Flammula* is plentiful; I mention this, as this species is not very common in this neighbourhood. Here I have since found the sweetly scented *Spiranthes autumnalis* in great abundance. A little further on is Lane End Common; here grows *Scutellaria minor*. Between Wycombe and Sheepridge, and near the latter place, *Melilotus vulgaris* grows in the clover-field mentioned at p. 58, with *Cuscuta europæa*; is this species generally known to infest clover? Here it certainly did so, the red stems clearly distinguishing it from *C. Trifolii*. In the same field was a proliferous variety of *Daucus Carota*, having small umbels growing out of the original head.

An interesting walk is that from the Marlow Road station to Marlow. Proceeding along the Buckinghamshire side of the river, I noticed *Achillea Ptarmica* in small quantity; it is not common in this district. On a piece of waste ground, near the Spade Oak Ferry, were *Plantago Coronopus* and *Erodium cicutarium;* and by the river a single plant of *Sium latifolium*. At Marlow, this species and *S. angustifolium* occur in some plenty by a ditch in a meadow near the suspension bridge. In a field of saintfoin, near Marlow, was a single plant of *Delphinium Consolida*; this has also been found in the Rye, High Wycombe; *Sedum Telephium* was observed in the hedge. Crossing the Marlow bridge, I returned through the Bisham and Quarry woods, along the Berkshire side of the river; here *Lysimachia vulgaris* grew in groves. About the Quarry, *Monotropa Hypopitys* was very fine and abundant, with some dead stems of an *Orchis*, which I thought might be *O. militaris*; *Epipactis media* was plentiful here, and *E. latifolia* appeared in small quantity. Emerging from the wood, I came on to Winter Hill, where *Asperula cynanchica* grew in abundance. A ditch at the foot of this hill was in one place completely covered with *Hydrocharis Morsus-ranæ*, a beautiful plant, but a most difficult one to convey home in good condition; in other parts were *Anacharis Alsinastrum*, *Sparganium natans*, *S. simplex*, *Helosciadium inundatum*, *Œnanthe Phellandrium*, *Œ. fistulosa*, and last, but not least, *Utricularia vulgaris*. The floating bladders which support the flower-stems of this plant are very remarkable; the yellow blossoms are very beautiful, and bear a distant resemblance to those of the garden Calceolaria. In a clover field, on the other side of the hedge, *Cuscuta Trifolii* was so fine and abundant that it must have proved a considerable nuisance to the owner of the crop. In one of the ponds, at the foot of Winter Hill, were *Sium latifolium* and *Butomus umbellatus;*

Digitized by Google

the former is truly a noble plant. *Hydrocharis Morsus-ranæ* fringed the edges of all the ponds here. In the flat pasture-land, *Trifolium fragiferum* was abundant, with *Helosciadium repens*; my selection of specimens of the former excited great curiosity among the rustic population, as represented by two herd-boys, and procured for me the complimentary (?) epithet of "the clover-man." At one end of this field is the marshy ground where so many of my spring rarities were collected. I then crossed the ferry at Bourne End, and, on my arrival in Buckinghamshire, noticed *Nasturtium sylvestre* and *Chelidonium majus*.

Gentiana Amarella, or, more properly, *G. germanica*, grows in great luxuriance on a small common called Four Ashes, Hughenden, with *G. campestris*, which is the rarer plant in this neighbourhood. In returning across the fields to Wycombe, *Verbascum Thapsus* was abundant in a field of saintfoin, with two specimens of what I took to be *V. virgatum*. *Echium vulgare* occurs very sparingly near Hughenden; and *Medicago sativa* is plentiful by the side of a field near Bledlow Ridge. This must conclude my list of Buckinghamshire rarities for the present year.

Since the above was written, Mr. J. C. Melville has rather forestalled me by giving his experiences of Marlow and Bisham rarities. I am very glad that another botanist has found it worth while to record some of the plants of this neighbourhood, and has confirmed my favourable opinion of its productiveness. With one or two exceptions, however, the plants noticed by Mr. Melville are different from those observed by myself; so that I shall make no apology for the few repetitions which may appear above. I may inform him that I have never seen *Hypericum elodes*, nor *Epipactis palustris*, on the common at Lane End, though I have frequently visited this locality. The floating *Sparganium*, near the Marlow Road railway bridge, is, I believe *S. natans*, not *S. simplex*. Is Mr. Melville quite sure that the *Pyrola* of the Parmoor wood is anything but *P. minor*? I ask this question because *P. media* has so often been reported from localities which have been found to produce only *P. minor*, and this error has, as I have before had occasion to remark,* occurred quite recently in this neighbourhood. I trust that the peculiar interest which I take in Buckinghamshire botany will plead my excuse for these observations; and that offence will not be taken where none is intended.

* Vide p. 139.

Digitized by Google

NOTES ON THE HABITS OF THE TOAD *(Bufo vulgaris)*.

By John Armitage.

As a practical observer of the habits of the toad, having for a period of thirteen years kept one in my greenhouse, I may perhaps venture upon a few remarks, in addition to those from the pen of Mr. Hepworth, which have appeared in the "Naturalist." (Pages 24 & 73.)

I first introduced the toad for the purpose of destroying the many insects which infested my greenhouse. The result was far beyond my most sanguine expectations, for, in a comparatively short space of time, it was cleared of them. Thinking now, that the toad might require more food, I began to collect insects of all sorts,—wasps, humble-bees, caterpillars, worms, wood-lice, beetles, &c.; these it took apparently quite indiscriminately. Ultimately I found that beetles, especially *Abax striola*, were its favourite food.

I may here observe, that the way the toad takes its food is truly remarkable. When the insect is on the move (and it only takes insects that are alive and in motion) the toad sets, at a distance of from three to four inches, and for an instant remains almost motionless—then there is a snapping sound, and the insect has gone! In a word—the insect disappears so quickly, that the eye of an ordinary observer will not be able to detect its mode of capture. The means by which the toad accomplishes this, is by suddenly darting forth its tongue at almost lightning speed—the insect is caught—the toad's mouth shuts with a clapping sound—the eyes instantly close, and the insect is swallowed! So certain is the toad of its prey that in the thousands of instances that I have seen, I have never known it fail once. On one occasion I remember the toad had taken an insect but was evidently unable to swallow it; after struggling for some time, the toad put out its tongue which the insect had seized, and was holding fast with its mouth. By means, however, of its forefoot the toad managed to get it off. The insect was a large *Abax striola*, and was quite uninjured for it soon crept away.

Although I have said that when the toad takes its food the insects must be alive, yet, it would appear that *motion*, and not *life*, necessarily incites the instinct of the toad to capture. For, from curiosity, I have attached a string to the antennæ of a dead insect, and slowly pulled it

Digitized by Google

before the toad, when it has immediately set, and captured it in the usual way.

From repeated personal observations I can now positively speak to the toad changing its skin once a month, during the summer. The process is very remarkable. It first selects an elevated situation, after remaining a short time a crack is observed in the forehead, and by means of repeated muscular action the crack gradually extends down its side; it then takes the right forefoot and strips off the skin on the left foot, and *vice versa;* next it draws out its hind feet, and all being now clear, it begins the very startling process of taking hold of the skin with its mouth, first to the right, and then to the left, and swallows the whole! The whole of this process is accomplished in from fifteen to twenty minutes time. The general appearance of the toad is completely changed—it being now of a light colour, with a glutinous matter covering the whole.

The toad remains in a torpid state about six months in the year. Circumstances may have much to do with its selection of place—but in my case, it crept backwards way into the soil to the depth of about twelve inches; repeatedly have I looked at it in this state, and have always found it breathing quite naturally, with its eyes wide open. Sometimes I have disturbed it for the purpose of seeing if it would take food, but it would do no such thing—living insects are, at this time, no attraction for it, and it is nearly void of all motion.

Having on one occasion to fill up the pit where the toad was, with soil, and not requiring the following year to remove it, the poor toad had to remain buried for a period of eighteen months—yet when exhumed it did not seem to have suffered in the least.

This brings me to the much disputed question of toads having been found alive in stone and coal, at great depths from the surface of the earth. I have no hesitation in giving my unqualified opinion, that it may be so. For as a periodically torpid state is one of its characteristics; and as it is quite possible that when in this state it may have become gradually buried; its tenacity of existence, together with its naturally torpid character, is, to my mind, sufficiently convincing to make such an event probable.

With regard to the toad being poisonous, I quite repudiate the idea: hundreds of times and under all circumstances I have freely handled it and have ever found it harmless.

The all-wise arrangement of creation is most beautifully illustrated in

Digitized by Google

the habits of the toad. It is one of the greatest of balance keepers; and why for generation after generation its persecution should have been so absolute, I am at a loss to conceive,—would that the stolid ignorance of the farmer could be removed by *facts*, then this remorseless extermination would cease! Only look at the annual destruction of crops by the canker-worm, and the beetle that deposits the egg which produces this canker-worm is the toad's favourite food!

I am reminded of the Churchwardens paying fourpence a piece for hedgehogs—because of their milking the cows—a thing all naturalists *know* to be absurd.

"Oh happy he that can the knowledge gain,
To know the eternal God made nought in vain."

Almondbury Bank, Huddersfield,
September, 1864.

Reports of Societies.

Birmingham Naturalists' Union.—At the meeting of this Society held at the Rooms, Suffolk-Street, on the 31st August, Mr. F. Enock exhibited a larva of *Acronycta alni* taken by him at Sutton Coldfield on the 27th August. This very rare larva was taken on a holly bush, but it had evidently fallen from the overhanging branches of an oak, on the leaves of which it feeds. It has since changed into a pupa, and with care Mr. Enock hopes to rear the perfect insect.

Society of Amateur Botanists.—At a meeting of this society, held on the 21st ult., at 197, Piccadilly, Mr. Bywater in the chair, Mr. Dyer made some remarks on the botany of Haslemere, Surrey, and exhibited specimens of the fruit of *Agrimonia odorata*. Some living examples of *Amaranthus Blitum* were laid on the table; and Mr. W. G. Smith exhibited some beautifully coloured drawings of Fungi. Several specimens of *Osmunda regalis*, showing its development from the seedling state, were submitted to the meeting by Mr. Dyer. A copy of Baker's "Review of the British Roses" was presented to the library by the author.

Doncaster Philosophical Society.—On Monday evening, September 19, the usual fortnightly meeting of this society was held in the Guild Hall, when Mr. Geo. Rayner delivered a short paper on "Microscopical sections of woods found in the neighbourhood of Doncaster." Mr. Saml. Appleby, vice-president, occupied the

Digitized by Google

chair. The essayist, after speaking of woods in general, particularised the oak, and gave a number of interesting historical reminisences concerning that monarch of the forest. The question of the cellular formation of wood was next taken up, when it was explained that, to the naked eye, the causes of the toughness and strength of various kinds were difficult to discover, but the microscope revealed the fact at once. The substance of the cells being more or less fibrous, it was shown that this, together with their compactness, determined the strength and durability of the wood. It was because these conditions existed in the oak that this tree was enabled to brave the frosts and blasts of hundreds of winters, that encircled it with a garland of glorious associations—that had crowned it monarch of the forest. With the aid of two powerful microscopes numerous mounted sections were then viewed by an interested company of ladies and gentlemen, for an hour and a quarter, during which time much information was elicited on the growth and structure of plants in general. It may be stated that the sections were transverse, and had been mounted with their bark on—hence the microscope revealed almost invariably two different kinds of cells, those in the bark for the ascending sap, and those in the substance of the wood for the descending. During the latter part of the evening, a lively discussion was engaged in as to whether vegetation received its nutriment from the earth or the atmosphere.—W. S. S.

Belfast Field Naturalists' Society.—The fifth excursion of this club took place on Saturday last, the 17th instant, Shane's Castle Park being the locality fixed on. Permission to visit the grounds on that day having been kindly accorded, the excursionists left town by railway at 9. 30 a.m. for Randalstown. Here the party entered the park, and, following the course of the River Main, reached the shore of Lough Neagh, the members occupying themselves during the ramble, which was continued as far as the ruins of the old castle, by a search after the rare plants said to be found here. The highly interesting lignite bed, so strangely inter-stratified with trap rock, was visited, and fine specimens of the coal embedded in basalt were secured. This point is also rendered exceedingly attractive by a well-arranged rockery, which has been formed during the present year, and in which are grouped the most interesting plants native to the park, thus exhibiting at one view the chief characters of its flora. The success of the botanists present was not equal to what might be

Digitized by Google

expected from such a rich botanical locality. This, however, was due to the advanced period of the season; still some plants of interest were found. At several spots on the railway banks, from Ballypallady to Antrim, were observed in profusion the handsome flowers of the field Scabious (*Knautia arvensis*), and in a field near Randalstown, the smooth, round-headed poppy, or corn rose (*Papaver Rhœas*), common in England, but here one of our rare species. In the park were found the gypsy wort (*Lycopus Europœus*), the hemp agrimony (*Eupatorium cannabinum*) and the yellow loose-strife (*Lysimachia vulgaris*). *Mimulus luteus*, an American plant, now naturalised in many parts of Britain, was also found to have established itself on the shores of Lough Neagh. The party returned to Belfast by train, leaving Antrim at 5-40 p.m.—JOHN HARTLEY, The Castle, Belfast.

Observations.

Variety of Turdus musicus, &c.—I observed, on the 16th instant, a perfectly white variety of *Turdus musicus*. It was an immature bird, and was killed at Aldeby, a village three miles north-east of Beccles. Two immature specimens of *Sylvia rubecula* were obtained on the 8th instant, at Ketteringham, the whole surface of their plumage being white, eyes pink. A variety of *Hirundo riparia* was shot on the river at the back of the New Mills, on the 11th of August last; the upper surface of its wings and tail being of a very pale ash-colour, the feathers of the upper wing coverts edged with the same. This was also an immature specimen.—T. E. GUNN, Norwich, September 19th, 1864.

Birds Collected at Cookham since January, 1864.—Having lately noticed remarks in the "Naturalist" about plants to be found about Bisham, Marlow, &c., I think a few remarks on the ornithology of the neighbourhood may be acceptable to some of the readers of the "Naturalist." There have not been so many birds shot this year as is usual in this place. Formosa, on the banks of the Thames, opposite Cliefden, the residence of the Duchess of Sutherland, is a splendid place for birds, and Mr. Briggs has collected for Mrs. De Vitrè about 270 specimens, among which may be noticed *Ardea stellaris*, (Lin.,) *Colymbus arcticus*, *Falco subbuteo* (Lath.,) *Picus minor* (Lin.,) *Strix brachyotus* (Gmel.,) and *Sylvia locustella* (Lath.) I myself have collected *Yunx torquilla* (Lin.,) *Certhia familiaris* (Lin.,) *Sitta Europ a* (Lin.,) *Turdus torquatus* (Lin.,) *Strix flammea* (Lin.,) *Falco nisus* (Lin.,) *Falco tinnunculus* (Lin.,) *Emberiza schœniclus* (Lin.,) *Fringilla montifringilla* (Lin.,) *F. coccothraustes* (Lin.,) *F. car-*

Digitized by Google

duelis (Lin.,) *F. spinus* (Lin.,) *F. borealis* (Tem.,) *Corvus glandarius* (Lin.,) *Motacilla boarula* (Lin.,) *Cuculus canorus* (Lin.,) *Totanus hypoleucos* (Tem.,) *Gallinula crex* (Lath.,) *Rallus aquaticus* (Lin.,) *Colymbus septentrionalis* (Lin.,) *Sterna hirundo* (Lin.) R. B. SHARPE, Cookham.

Curious variety of House Sparrow.—A few days ago I noticed feeding along with some sparrows, in a horse-dealer's yard, at the back of the office in which I work, a variety of the house sparrow; it was almost all of a pure white, except a few feathers in the tail and on the head. I was asked might it not be a white swallow *(Hirundo rustica,)* but it was without doubt a piebald sparrow, having the short round body and conical beak of that bird.—JOHN HARTLEY, the Castle, Belfast.

The Eggs of the Lucky or Money Spider.—Some boys brought me some common Plantain seed for my bird (a grey Linnet) and upon the stalk of one I observed a small quantity of insect silk, about the size of a fourpenny-piece. Upon examining this piece I found that the silk was kept in its place by two threads which went round both it and the stem. Upon removing this, I found under it a cluster of minute eggs, laying upon another cushion of silk, and glued to it. This cushion of silk was also fastened to the stem like the other. I put the cushion and the eggs under a glass, and I soon had a fine brood of the little spiders, popularly called the Money or Lucky Spider. I have since had another collection of similar eggs, found fastened in a similar manner to a small sprig of Laurel.—J. RANSON, Linton-upon-Ouse, Yorkshire, (communicated by the REV. F. O. MORRIS.)

British Butterflies on the Continent.—The following notes may perhaps not be unacceptable to the entomological readers of the "Naturalist." I do not pretend that the list is a complete one, but that it contains simply those observed by me in the month of July, on the Continent. I noticed the following Butterflies, which also appear in England, in July, viz.:—*P. Machaon, P. Brassicæ, P. Rapæ, P. Napi, C. Edusa, A. Paphia, A. Aglaia, A. Euphrosyne, A. Adippe, V. C-album, V. urticæ, V. polychloros, V. Atalanta, V. Cardui, A. Galathea, S. Semele, S. Janira, S. Hyperanthus, C. Pamphilus, T. Quercus, P. Phlæas. L. Alexis, L. Corydon, L. Arion, H. Sylvinus,* and *H. linea.* I also observed the following, which appear in England at some other time of the year, viz.:—*L. Sinapis, A. Cardamines, G. Rhamni, C. Hyale, A. Euphrosyne, M. Artemis, M. Athalia, V. Antiopa, L. Alsus,* and *S. alveolus.* I also observed *P. Podalirius, D.*

Digitized by Google

Apollo, and *C. Ligea*, which Mr. Newman gives as reputed British Butterflies.—G. H. jun., 16th Sep.

Plants around Frodsham, Cheshire.—I think that now for several seasons the Liverpool Field Naturalists' Club have honoured Frodsham with a visit; and for their information, should they purpose to include it again in their arrangements, I give a short list of plants, out of a great number that are generally considered but local in their distribution. On and about Overton Hills may be found *Asplenium Adiantum-nigrum*, *A. marinum*, *A. Ruta-muraria*, *Aspidium Oreopteris*, *Briza minor*, *Cladium Mariscus*, *Convallaria majalis*, *Solanum nigrum*, *Menyanthes trifoliata*, *Chlora perfoliata*, *Convolvulus arvensis*, *Antirrhinum majus*, *Osmunda regalis*. In the marshes below Frodsham, *Utricularia vulgaris*, *Ophioglossum vulgatum*, *Ononis arvensis*, *Hydrocharis Morsus-ranæ*, *Aster Tripolium*, *Vaccinium Oxycoccos*, *Armeria maritima*, *Plantago maritima*, *Primula veris*, &c. In conclusion permit me to add, should the Liverpool, or any other Field Naturalists' Club, intend paying Frodsham a visit, I shall have great pleasure in acting as their guide, if they would kindly give me a week's notice of their intention.—J. F. R.

Monstrosity of Papaver setigerum, (*De C.*)—By Professor Henri van Heurck, President of the *Societé Phytologique d'Anvers*.—M. van Heurck has kindly sent us a paper read by him before the Societé Royale de Botanique de Belgique, of which the following is an abstract. The genus *Papaver* has already been noticed to have produced a singular monstrosity, by the change of stamens into capsules. This phenomenon has been observed in three species, viz. in *P. orientale*, by Hugo von Mohl, in *P. somniferum*, by the elder De Candolle, and in *P. dubium*, by Elkan. The monstrosity noticed by M. van Heurck differs from the above, and was observed by him in a plant of *P. setigerum*, growing in his garden in 1861. We quote his own description of this singular phenomenon:—"At the base of the capsule, just above the cicatrice left by the fallen sepal, was a little projection, terminated superiorly by a flower. This projection was not found in several other cases, but the little flowers were placed immediately upon the cicatrice left by the fallen sepal. The little flower when open measured about 2.70 millimetres [.1063 in.] and the superior sepal 1.5 mill [.059 in.]. The petals were of the usual number, four, but were only rudimentary, and the stamens similar to those of the normal flower; the latter were formed of a cellular mass, without any trace of pollen, and presenting

Digitized by Google

a few vascular tubes in the connective. The capsule was well formed, covered by a plate of eight stigmas but not enclosing any seeds. So far we have been examining a very curious monstrosity; but what makes it still more interesting is the fact, that upon five capsules thus altered, two bore three flowers on the receptacle, and the three flowers were at equal distances from each other." "It is well known that certain *Papaveraceæ*, and amongst them, all those belonging to the small group, with compound ovaries, have *three* sepals, and further that a variety of *P. bracteatum* is monosepalous. Does it follow, then, that in this genus there is a fusion of three sepals into two? I hesitate to say so. All my researches on living plants, at all periods of development, shew me nothing to authorize this. To quote from a letter of my illustrious countryman, M. Decaisne: 'As to fusion, I candidly avow that I no longer believe in it, and I am persuaded that the whole theory of fusions, abortions, and so forth, has had its day, and henceforth at least there will be no further question of it. Take good care of making too much of cases of fusion and abortion, it is a commodious way of explaining things but not a true one.'"

Rosa alpina (L.) in Britain.—We have received a communication from Mr. John Sim, of Perth, in which he states that Dr. White recently brought to him specimens of this plant, which he had gathered on Kinnoull Hill, to be named. Mr. Sim enclosed a specimen of the plant in his letter, and also forwarded specimens to Prof. Babington, and Mr. J. G. Baker, of Thirsk, for identification. We hope in our next number to give a full description of the plant and its discovery, with the remarks of the above-named gentlemen on its claims on the British Flora, &c.

Curious effect of Grafting.—Some time ago, in a public garden of this place, a branch of elm was grafted on an oak in the expectation of obtaining a tree half of which would be an elm and half an oak. Contrary to the expectations of the gardener, however, the following was the result:—The tree commenced budding this spring, and when the leaves appeared it was found that each branch, nay even each twig, had both oak leaves and elm leaves growing upon it, in place of there being separate branches, each bearing a different kind of leaf. I will only add that the tree is in full leaf, and I have just obtained a cutting, which I intend to cultivate if possible; and I hope next spring to be able to inform the readers of the "Naturalist" of the result of my endeavours. I also enclose a sprig for your examination,

Digitized by Google

and would like to ask, is this a unique phenomenon, or has anything of the kind been observed before? It is certainly remarkable, yet not less strange than true.—T. G. P., Clifton, Bristol, Sept. 1864.

[The twig mentioned above has four secondary branches springing from it, and bears eight elm leaves on the lower two branchlets, and ten oak leaves on the upper two. Can any of our readers state whether a similar occurrence has previously come under their notice.—EDS. NAT.]

Notes and Queries.

Tree Sparrow.—I should be greatly obliged if any reader of the "Naturalist" would inform me where the Tree Sparrow occurs in Western Yorkshire or Lancashire.—G. ROBERTS.

Linaria purpurea.—In answer to Mr. Britten's enquiry respecting the locality of the above plant, which was exhibited by Mr. John Armitage at a meeting of the Huddersfield Naturalists' Society, it gives me pleasure to inform him that the place is about two miles from Huddersfield, on the Bradford Road, on a piece of ground called Longwood House, and previously broken up by quarrying operations. Here the remains of shale, clay and loose stones form large mounds of some acres in extent, of some portions of which the plant has taken undisputed possession, growing luxuriantly to the height of three feet or more. The flowers are not very conspicuous, their purple colour approaching to that of the shale in which they grow. They were first found there by Mr. Thos. Bartlam, about three years ago, and although they have taken such firm hold of the ground, I am inclined to think they are not indigenous to the locality, but owe their origin to the gardens of some cottages which stood there before the quarrying operations were carried on.—R. JESSOP, Lascelles Hall, September 15, 1864.

Linaria purpurea.—In looking over No. 9 of the "Naturalist," I observed a query by Mr. Britten as to the habitat of *Linaria purpurea* in the neighbourhood of Huddersfield. It is well known to botanists that this is not admitted into any of our principal British floras, on account of its being met with as an outcast from gardens. Its native place appears to be the South of Europe, but it has been cultivated in botanic and private gardens in England since the year 1683, under the following names:—*Linaria purpurea*, Toad Flax; *Linaria purpurascens*, *Linaria major odorata*, Great Purple Sweet Smelling Toad Flax; *Antirrhinum purpureum*, Purple Snapdragon. The Huddersfield locality of this plant is about a mile and a quarter from the town,

Digitized by Google

on the Bradford-road, in a charming spot, surrounded by most beautiful scenery. Striking across a footpath at the back of the New Inn, and crossing the hill, we arrive at the place where once stood Longwood House, and its gardens. The old house was taken down some years ago, and a new one erected a short distance from the place. Since then a portion of the gardens have been destroyed by delving for stone, and in this place, among stone and debris, *L. purpurea* is found growing. I have been over the ground to-day, Sept. 21st, and, along with the *Linaria*, I observed the following plants:—*Armoracia rusticana*, Horse Radish; *Matricaria parthenium*; and several others which it is useless to mention. I think this quite sufficient to convince any one as to what claims *L. purpurea* can have as a British plant in this locality. If some of Mr. Darwin's disciples were to see these plants growing here, they might say they were struggling for existence, but surrounded by difficulties.—W. Guthrie, Fixby Park, Sep. 21.

Asplenium marinum.—Do any readers of the "Naturalist" know of any inland habitat for this beautiful fern? Hooker, in his Flora, says "in rocks and caves by the sea side." It has been found growing in a quarry, near Warrington, and in two rocks on Overton Hills, near Frodsham, Cheshire—both localities far removed from the sea side. Perhaps some may be inclined to think there must be a mistake, but upon comparing it with specimens found on rocks by the sea side, and with the descriptions given in our floras, it is found to correspond in every particular.—J. F. R.

Review.

"*The Flora of Harrow, &c.,*" *by* J. C. Melville. London: Longman, Green, and Co., 1864.

We hail with pleasure the appearance of another addition to our Local Floras, in the one standing at the head of the present notice. These local lists (particularly when got up with the same care as the "Flora of Harrow,") are undoubtedly the best means of delineating the geographical range of our British plants, and we heartily wish that similar lists may soon be published of all the counties or districts in the kingdom. The little work before us is "entirely drawn up by Harrow boys, of whom four are still members of the school, and one has recently left it."

It contains, besides the Flora by J. C. Melville, notices of the birds of the neighbourhood (by the Hons. F. C. Bridgeman and G. O. M. Bridgeman, and of the butterflies and moths by C. C. Parr and E.

Digitized by Google

Heathfield, with a map of the district, the whole forming a very nice guide to the natural history of the locality.

The list of plants is scarcely so full as we should have expected, containing about one-third (566) of our flowering plants and ferns, besides a few aliens, amongst which we may mention *Veronica peregrina*, recently noticed in our pages from Perth, which is said to have occurred "from some seeds on some dried plants brought from Belfast." Were these accidentally or purposely scattered on the ground? Amongst the rarities we notice *Hesperis matronalis*, *Lathyris Nissolia*, *Epilobium angustifolium*, *Vinca minor*, *Chlora perfoliata*, *Primula elatior*, (*Jacq.*) *Fritillaria*, *Sagittaria*, and a few others. The orders *Ranunculaceæ*, *Geraniaceæ*, *Compositæ*, *Carices*, and *Gramineæ*; and the genera *Rubus* and *Veronica*, are well represented, whilst *Saxifragaceæ*, *Liliaceæ*, *Ericaceæ*, *Campanulaceæ*, and *Filices* are in small force, the remaining orders being of a fair average character. A few plants we are surprised to find missing from the list. Are both the *Chrysospleniums* absent? also *Cardamine sylvatica*. Along with *Saxifraga tridactylites* we should have expected to find *S. hypnoides* and *S. granulata*. *Senecio Jacobæa* should occur, and we think further search might be rewarded with more species than one of *Œnanthe* and more *Orchidaceæ*.

We may also hope, that in a future edition, the mosses will receive a share of attention.

The Flora is followed by a very fair list of Birds, which have been noticed at Harrow, with appropriate remarks on many of the species, and the book closes with a very meagre list of the Macro-Lepidoptera, occupying only seven pages. We trust the Fauna of this locality will receive the same careful attention which has been bestowed upon its Flora, and that a future edition of this interesting work, which we hope may soon be required, will show that Harrow has not been behind hand in inculcating a deep love of nature among its sons.

Exchange.

Polia Chi.—I have fine specimens of this insect for exchange, for the ova, larva, or pupa of other species. My desiderata are numerous, especially among the Bombyces; amongst others I am desirous of obtaining the following—*S. ocellatus*, *T. Batis*, *T. derasa*. *S. Fagi*, *N. ziczac*, *C. bifida*, *C. reclusa*, *D. mendica*, *E. Jacobeæ*, *E. russula*, &c. Offers, if accepted, will be replied to by return of post.—G. Smith, Back Bedford Place, Leighton Lane, Leeds.

Digitized by Google

Original Articles.

SPONTANEOUS EXOTICS.

By James Britten.

In the neighbourhood of London, and other great cities, especially such as are seaport towns, a class of plants occurs which is distinguished by the name of "ballast plants," and setting aside such species as the Groundsel, &c., which are almost ubiquitous, many of our reputed British species are almost entirely confined to such localities. *Melilotus vulgaris*, for example, has a most remarkable predilection for these spots, and this is also the case with *Datura Stramonium*, and many more. But besides these two divisions of the class there is yet another which I think I may call the most interesting of the three, comprising such plants as are certainly foreign to this country, but which appear spontaneously, and can scarcely be reckoned as garden escapes.* Many of these have now become completely naturalised in one or two localities; others are imperfectly established; while some only appear occasionally, and do not retain their position with us. Now although it may be generally felt that these wanderers have not the interest for a British botanist that plants indigenous to his country enjoy; yet it must be conceded that they are at least worthy of some attention, and should not be passed by without notice. It is impossible to draw correctly the line which separates our native plants from introduced species; and all attempts to do so have proved, and will prove, more or less abortive. The learned author of the *Cybele Britannica* doubts the true British nativity of the Violet, except in the Isle of Wight; and each person has his own list of "excluded species," either larger or smaller than that of the *London Catalogue*, for but few agree on the subject. As a resident in London, where true British botany is, to a certain extent, out of the question, I have given considerable attention to the class of plants alluded to, and have been at some pains to collect as perfect a list of them as possible from various botanical works. The *Phytologist*, both the old and new series, is a perfect treasury of information on this branch,

* Of course, I do not mean to assert, by the term "spontaneous," that the appearance of these species is untraceable to the ordinary method of plant dispersion, by seed: but I use the word to imply only, that as far as the direct agency of man is concerned, they have sprung up of their own accord.

Digitized by Google

as, indeed, it is on almost every other of British botany. It has occurred to me that the *Naturalist* would be a fitting recipient for such a list, and I shall therefore, with the Editors' permission, send portions of it from time to time, for insertion in its pages. The list will contain the following particulars relative to each plant enumerated;—its locality, the name of the person by whom it was noticed, and the date, when this is attainable, of its discovery; with such notes as may appear to me useful or interesting relative to the circumstances of its occurrence. I shall be very much obliged to any of the readers of the *Naturalist* for any information which they can supply regarding such plants, and when accompanied with specimens this will be the more acceptable. The list will be in accordance with the fifth edition of the *London Catalogue;* the species which are there admitted will find no notice here, and this, not because I accept the dictates of that work, but because it is absolutely necessary to have some list as a guide as to what to exclude, and what to embrace, and the *London Catalogue* being cheap and well known, is chosen in preference to other more elaborate works.

In addition to those plants which I have termed "spontaneous exotics," there are others which, although British species, cannot possibly be indigenous to many of the localities in which they occur; these must, however, be left unnoticed at present. There are also some species which are set down as "erroneously recorded," &c., of these I shall give such particulars as may be deemed useful for reference. Of the few species, new and apparently indigenous to Britain, which have been discovered since the publication of the fifth edition of the *London Catalogue*, I shall here take no notice, as I could not include them with propriety under the title which I have chosen for these papers; and for the same reason the recent divisions of the species of *Fumaria, Papaver*, &c., will be excluded. After the completion of the present list, a supplementary one will be given, in which will be recorded such additions, whether of species or localities, as may have occurred since the present date.

The following are the principal works hereafter quoted or referred to, with the abbreviations by which I have distinguished them for reference:—

'Cybele Britannica,' by H. C. Watson, Esq., F.L.S. 3 vols. 8vo. London, 1847-51. = *Cyb.*

'The Illustrated Handbook of British Plants,' by Alexander Irvine, Esq., F.B.S. London, 1858. = *H.B.P.*

Digitized by Google

'The Phytologist,' old series, vols. i—v. 8vo. London, 1842-54. = *Phyt. O.S.* New series, vols. i—vi. 8vo. London, 1855-63. = *Phyt. N.S.*

'The Botanist's Guide through England and Wales,' (Turner and Dillwyn.) 2 vols. 8vo. London, 1801. = *B.G.*

'Synopsis Stirpium Britannicarum,' (Ray.) Third Edition, 1724. = *R. Syn. iii.*

Many valuable local Floras are also occasionally quoted, with other botanical works; and much assistance from my friend Alexander Irvine, Esq., is thankfully acknowledged.

Order I.—Ranunculaceæ.

Thalictrum majus, Jacq. This is one of the ill-defined species which are fortunately expunged from our Flora. Babington (*Manual*, ed. 2. p. 4.) gives as its habitat "Bushy hills in the south of Scotland and north of England." "Localities were published for this plant in the provinces of Channel and Thames, on the authority of Dr. Maton and Rev. H. Davies, but there seems good reason to presume that *T. flavum* must have been mistaken for the present species." *Cyb. x.* 73. "At Baysdale, near Darlington; also on the margin of Ulswater, Cumberland. Mr. Robson." *English Flora, iii.* 42.

Adonis flammea, Jacq. This is recorded in Brewer's *Flora of Surrey*, p. 313, on the authority of the late Joseph Woods, as being one of the "Plants found on the Thames side, near Wandsworth and Battersea, undoubtedly introduced to the locality." It seems most probable that the plant occurred in the former of these places, which is the locality hereafter so frequently referred to as the waste ground at Wandsworth steamboat pier.

A. æstivalis, L. "Cornfields on Salisbury Plain, near the road from Ambresbury to Everley." Withering's *Systematic Arrangement, ed.* 4. *iii.* 492. "I have specimens of this plant, sent me as indigenous from Dr. Withering and Mr. Sowerby, which, especially the latter, appear very different from *A. autumnalis*." Turner in *B.G. ii.* 652. Sir J. E. Smith, however, says, "this has never been found in England; for specimens sent by my late worthy friend Dr. Withering, show his *æstivalis* to be but a starved and paler *autumnalis*. *Eng. Fl. iii.* 44.

Ranunculus alpestris, L. "By little rills and among rocks on the mountains of Clova, Angus-shire, seldom flowering." G. Don, April 9, 1809. "No other botanist has ever detected an example of the species there." *Cyb. i*, 83. Babington (*Manual, ed.* 2. p. 6.) after stating that the figure

Digitized by Google

in English Botany does not seem to agree with *R. alpestris* of Linnæus, remarks "Can the Clova plant be *R. Traunfellneri*, Hoppe, a specimen of which (from Croatia) in my herbarium, is well represented by the E. B. figure?"

R. gramineus, L. "Specimens brought from North Wales, by Mr. Pritchard," *With. Arr. ed.* 4. *iii.* 496. "The locality has been reported" in the neighbourhood of Llanrwst, "but botanists have vainly sought the present species in that neighbourhood." *Cyb. i.* 85. "We have been informed by Mr. Baker that this plant has recently been found by Mr. Etheridge, of Bristol, in Lundy Island, in the Bristol Channel." *Phyt. i.* 120, *N.S.* As this latter announcement was never confirmed, we may suppose it to have been erroneous. In both cases, perhaps, small states of *R. Flammula*, such as occasionally occur on the Surrey commons, were mistaken for *R. gramineus*. From the *New Botanist's Guide*, p. 299, it appears to have been recorded, in a work devoted to local information, as having occurred near Southport, Lancashire.

R. muricatus, D.C. Appears from an essay by Mr. N. J. Winch, "On the Geographical Distribution of Plants through the Counties of Northumberland, Cumberland, and Durham," to have occurred on the "ballast hills of Tyne and Wear." These hills are among the richest localities for exotics which are to be found in England; this will be observed from the frequent reference made to them in these pages. *R. muricatus* is also recorded doubtfully by Mr. Irvine from the waste ground at Wandsworth steamboat pier. (*Phyt. iii.* 334, *N.S.*) It is a native of the south of Europe.

R. trilobus, Desf. and *R. cordigerus*, ? L. are reported by Mr. Irvine from the Wandsworth waste ground: the former in *Phyt. iii.* 334, *N.S.*; the latter doubtfully in *H.B.P.*, 787.

Delphinium Ajacis, L. Considerable doubt has been expressed as to whether this be not the species supposed to be a native of this country. Mr. Baker, in *Phyt.* ii., 376, *N.S.*, states that his own impression is "that this is the plant of 'English Botany.'" but Professor Babington, in his *Manual* ed. 5, distinctly informs us that the British species is *D. Consolida*. *D. Ajacis* is stated by Mr. Baker, as above, to have been "collected by Hort in Cambridgeshire, and Mr. Mudd and myself in Yorkshire." The Rev. W. R. Crotch, as reported in *Phyt* iii., 185 *N.S.*, remarks, "The specimens of *Delphinum* in my herbarium, one sent to me by Professor Henslow, from Cambridgeshire, one gathered by me in Davenport Wood, near Bridgenorth, Shropshire, and one near Greenwich, were all labelled

Digitized by Google

by me *D. Ajacis*, at the suggestion of a German botanical friend." The Rev. A. M. Norman reports it from "Jersey and Guernsey." *Phyt.* iv., 383, *N.S.* It seems probable that both have an equal claim to be enumerated among the natives of this country.

D. orientale, Gay. "From a potatoe field at Carlson Moor, near Thirsk." J. G. Baker, *Phyt.* ii., 376, *N.S.*

Nigella sativa. This, which, like the majority of the plants from the same station, is a native of the south of Europe, is recorded by Mr. Irvine as having occurred on the waste grounds at Wandsworth steamboat pier. *Phyt.* iii., 334, *N.S.*

N. Damascena, L., and *N. arvensis*, L. Two South of Europe plants, recorded by Mr. Winch as above, from the ballast hills of Tyne and Wear. These hills are probably identical with those elsewhere referred to as the "Sunderland ballast hills." I have lately received a specimen of *N. Damascena* from my friend Mr. W. Roberts, who noticed a few plants of it in August last, growing in a field of flax in the parish of Westward, Cumberland, associated with *Cynosurus echinatus*, &c.

Aconitum Lycoctonum, Reich. "Grows in a meadow in the vale of Newlands, Cumberland, too near a garden," W. Bower, *Phyt.* ii., 431, *O.S.*

A. Stoerkianum, Reich. Several plants of an *Aconitum*, which appears to be this species, were noticed in May of the present year, growing not very far from the river, near Cookham Bridge, Berks. I removed one to my garden, where it has flowered freely. It had probably been cast out from a garden.

Pæonia officinalis, L. This plant, which is the common double Peony of gardens, and the *P. fœmina* of old authors, is recorded by Merrett (*Pinax*, 1667, p. 96,) as occurring "in a close belonging to Mr. Stevenson, of Sunning-well, in Berkshire, of above fifty years standing, and in Stancomb-Wood, near Winchcomb, Gloucestershire;" the latter of these stations being the one hereafter quoted as belonging to *P. corallina*. In the (*Cybele*, i, 99,) we are told that Mr. Hancock reports it from "a thicket of bushes near Blaize Castle," northward of Bristol.

P. corallina, Retz. This species is interesting from the fact that it was at one time enumerated among the indigenous productions of this country. The first notice of it as a British plant appears to be that of Gerarde, who describes it as growing "upon a conyberry in Betsome, Kent, two miles from Gravesend, and in the ground sometimes belonging to a farmer there called John Bradley;" on which his editor, Johnson,

Digitized by Google

remarks, "I have been told that our Author himselfe planted that Peione there, and afterwards seemed to finde it there by accident, and I do beleeve it was so, because none before or since have ever seen or heard of it growing wild since in any part of this kingdom." (*Ger. Emac.*, 983.) In Merrett's *Pinax*, before referred to, it is recorded as occurring "in Mr. Field's Well-Close, in Darfield, Mr. Stonehouse," (p. 96); but in the *Indiculus Plantæ Dubiarum*, in *R. Syn.* iii, we are told, on the authority of the same gentleman, Mr. Stonehouse, that in this locality, "though far from any house," it was believed to have come first "out of a garden with some dung." Mr. Pamplin, in *Phyt.* iv, 745, *O.S.*, published the following note, "evidently by a contemporary of Ray," found by him in a copy of the first edition of Ray's *Catalogus Plantarum Angliae*, 1670: "*Paeonia mas vera*, found in Stankham Wood, about halfe a mile from Winscham in Gloucestershire, by Fran. Collins, who took up many of the roots and sold them to the Apothecarys of London, and left some of the small roots to grow againe, and sowed of the seeds he then gathered in the same place." It is somewhat remarkable that this same locality is given by Merrett for *P. officinalis*, and renders it probable that on one side or other a mistake in the species has occurred; but it certainly seems probable that one of the two plants was really found in this locality. But the station on which *Paeonia corallina* claims its place as a British plant, is that on the island of Steep Holmes, in the river Severn, where it was discovered in the rocky clefts, growing in great plenty, by Sir F. B. Wright, in 1803, (see *Phyt.* i, 616, *O.S.*) In *B. G.* ii, 523, we are told "that it is really indigenous there can be little doubt, as well from the nature of the locality as from the information communicated to Dr. Smith, who first acquainted us with its being found there." This opinion was maintained by British botanists for some time, but it now seems probable that the plant is an introduction. Mr. Flower, in the *Phytologist*, as above quoted, adds, "I observed this plant growing in the rocky clefts, in the Steep Holmes, in the summer of 1836, but it was then nearly destroyed by destructive visitors." Mr. Edward Edwards, however, in a letter dated September, 1833, states that "the plant, though now become extremely rare in the Steep Holmes station, is still there, and may possibly remain till future seasons, from the great difficulty of attaining the *perpendicular* cliffs where it grows." (*Phyt.* i, 713, *O.S.*) Since this date we appear to have no further record of its occurrence in this locality: does it still remain there? This is a question which, it is hoped, will not be long left unanswered. Mr. Flower also states that "a

Digitized by Google

solitary plant was observed, some time since, growing in the centre of a large wood near Bath, Somerset, by Miss Lonsdale; but I am informed it has been recently dug up." The only remaining locality which I have found to be recorded for *P. corallina*, is that given in Baker's *Supplement to Baines' Flora of Yorkshire*, published in 1854, where it is said (p. 40,) to be "naturalised in Kildale Woods, Cleveland, *W. Mudd.* Probably on the site of an old garden."

Order I*.—BERBERIDACEÆ.

Epimedium alpinum, L. This is another of the plants which have been recorded as native to this country, though perhaps on insufficient grounds. The older authors, as Gerarde and Parkinson, were unacquainted with it as a British plant, nor was it known as such to the great Ray, the true father of English botany. The first notice we have of its pretensions to rank as an indigenous plant, is to be found in Blackstone's *Specimen Botanicum*, published in 1746, where it is recorded (p. 19,) on the authority of Dr. Richardson, as growing "in Bingley Woods, six miles from W. Bierley, Yorkshire, not sparingly." In this locality it apparently held its ground, and perhaps still remains, for Mr. Samuel Gibson, in *Phyt.* i, 715, *N.S.*, states that "it is still to be found in the neighbourhood." "On the 19th of June last, [1843]," he adds, "Mr. Ainley showed me the plant growing on the left hand side of the river, going from Bingley towards Leeds. In 1821 and 1834 I got it on the other side of the river, and much farther from the town." In Withering's *Systematic arrangement*, (ed. 4,) the following Cumberland localities for the plant are given. "Mr. Robson has sent me a specimen which was gathered on Skiddaw, in July, 1795. Also specimens from the Rev. T. Gisborne, whose plants were discovered in 1787, in a very wild part of Cumberland called Carrock Fell," (ii, 197.) Cumberland, indeed, appears to have been the head-quarters of the plant, for we find that it was reported "on Saddleback, near Threlkeld," by Mr. Hutton; and authenticated by Mr. Rudge, who "had received a specimen from a lady, who gathered it herself in the above habitat," (*B. G.*, i. 146.) Mr. Borrer also recorded it in *Phyt.* ii, 3, *O.S.*, from "a wood by the river, half-a-mile from Santon Bridge, some three miles from Nether Wasdale, Cumberland," but considered it to have been there introduced; and a friend, in whose herbarium is a specimen of this plant, informs me that it is stated to have been found on the Screes, a mountain on the side of Wast-water, also in Cumberland. In the *Supplement to the Flora of Yorkshire*, (p. 70,) it is said to be "naturalised in Kildale Woods,

Digitized by Google

Cleveland," on the authority of Mr. W. Mudd. And in the third edition of *English Botany*, now publishing, the County of Westmoreland is given as one of its habitats. The most southerly English station in which the plant has been found is near Bristol, where Mr. H. O. Stephens observed it, somewhere about 1829, "in the northern division of Leigh Wood," (*Phyt.* i. 774, *O.S.*) A specimen has been sent from North Wales, "with the locality of Snowdon attached, (see *Phyt.* vi, 96, *N.S.*); and in Scotland several stations are recorded for it, as "about the ruins of Murdock Castle, near Glasgow." Mr. Hopkirk. At Hunter's Tryste, near Edinburgh. Dr. Hastings *Eng. Fl. i.* 220, and "Cleish Castle, Kinross-shire; Saline, Fife; but as Saline is very near Cleish, it may be the same locality as the previous." *Eng. Bot., ed.* 3, *i*, 74. Mr. Watson considers the species "an alien, not to be held fairly naturalized," and "occasionally planted in woods for the purpose of imposing on botanists." *Cyb. i.* 392.

(To be continued.)

ROSA ALPINA (*Lin.*) IN BRITAIN.

In accordance with the notice in our last issue (p. 173,) we have now the pleasure of submitting to our readers the following notes on this rose. It will be seen that neither Mr. Sim nor Mr. Baker consider it in any other light than that of an alien, and Professor Babington speaks even more strongly. At the same time it would be satisfactory to have the origin of its appearance at Kinnoull thoroughly sifted out. Will any of our Perthshire friends undertake this task, and communicate with us?

The following are the communications we have received:—

From Mr. John Sim.

Dr. F. B. W. White, junior, of Perth, has this summer detected this rose growing on the north-west side of Kinnoull Hill, about a mile eastward of the city of Perth. When first seen it was in flower, the blossom being deep crimson. On a second visit, early in August, it was in fruit; not knowing what rose it was, he brought me a few sprigs in order to see whether I could identify it. On reference to *Green's Botanical Dictionary* I found a short description of a rose which agreed with it, under the name of *Rosa alpina*. Still having doubts in my own mind on the matter, I enclosed a specimen in a letter and sent it to Professor Babington, of

Digitized by Google

Cambridge, who, with his usual kindness and urbanity, confirmed my opinion by naming it *Rosa alpina*, a native of the "Alps, Germany, Piedmont, and Siberia."

This *Rosa*, as far as I am aware, has not hitherto been observed in Britain; neither do I consider it as aboriginal to the British Isles. The great difficulty is to account for its present position on Kinnoull Hill. Should it be discovered elsewhere in this country, there can be no danger of confounding it with any of our British species, its appearance being very distinct from them. The leaves are pinnate, and consist of four pairs of ovate, pointed, serrated leaflets, the terminal leaflet or ninth being rather larger than the others. It appears to be destitute of prickles, and, as far as regards the form of its leaves (only,) has some resemblance to the Burnet Rose. The fruit, however, is very different, being urceolate and curved, smooth, and terminated by the sepals of the calyx, which are long and awl-shaped, or rather spindle-shaped.

Dr. White states there were several bushes in the locality, each from three to four feet in height.

Bridge End, Perth, August, 1864.

FROM MR. J. G. BAKER.

Rosa alpina does not fall under any of the five groups which have already been described in the "Naturalist."

The *Alpinæ* are low bushes, either entirely without prickles or with only a few weak ones on the main stems, but with the younger branches often furnished rather plentifully with slender aciculi, doubly dentate leaves, quite glabrous on the upper surface, and either glabrous or a little hairy and glandular on the midrib beneath, naked or more or less glandular and aciculate peduncles, simple, or nearly simple, but long leaf-pointed sepals, which are almost naked, or more or less glandular on the back, and which are truly persistent on the bright-red often pendant fruit, and more or less hairy free styles.

They have their head quarters in the Alps, with outlying stations westward, and northward in the Pyrenees, the hills of Auvergne, the Vosges, the Jura, the Sudetes, and in Baden.

Linnæus describes two species, *alpina* and *pendulina*, Koch and Grenier unite these together into one, Dèsèglise separates them into six.

Mr. Sim's plant is the genuine *R. alpina* of Dèsèglise. The specimen

Digitized by Google

he has sent me shows the following characters;—Leaves full green and quite glabrous above, paler beneath, quite glabrous over the blade, but very glandular on the midrib, the main serrations deep, furnished mostly with three or four accessory gland-tipped teeth on each side, the fully developed terminal leaflet measuring about an inch and three quarters long by an inch broad, in shape elliptical, with a slight ovate tendency. Petioles with abundant setæ, but neither hairs nor aciculi. Stipules with large leafy divergent lanceolate auricles, glabrous on the back, but copiously setoso-ciliated. Fruit (unripe,) ovate-ampulliform in shape, pendant, and quite glabrous. Sepals about an inch long, one only with a small linear pinna. The body of the blade small, but the point elongated and dilated at its summit. The sepal naked on the back, tomentose, and slightly setose towards the edge, copiously setoso-ciliated.

In the whole of the British species *R. alpina* is perhaps nearest *spinosissima*, but from this the difference in the armature of the stems, the densely toothed leaves, the pendant scarlet fruit, and the long leaf-pointed sepals readily distinguish it; neither are the flowers invariably single, as in the latter, but on the contrary there are three or four of them when the plant is at all luxuriant. The petals are a pleasant deep bright crimson, so that when in flower it is very conspicuous and beautiful.

It is not unfrequently cultivated, and is scarcely likely, from its Continental distribution, *(vide supra,)* to grow wild in Britain. But there is a bare possibility that it may be found to be a British plant ultimately. Amongst a set of roses which I received many years ago from my valued friend John Tatham, of Settle, all of which he thought, though they were not labelled separately, had been gathered in the Craven district, were two specimens of *R. alpina*, and another dear friend, who knows the plant well, tells me that he has an indistinct recollection of seeing it many years ago, from the top of a coach, amongst the Chalk Wolds of East Yorkshire. Under these circumstances it seems quite worth while for our botanists to learn what it is like, and keep it in memory.

Thirsk, September, 1864.

[We may state that Professor Babington, to whom these papers have been submitted, says that he quite agrees with Mr. Baker, and cannot admit *R. alpina* as having any claims on our native flora.—Eds. Nat.]

Digitized by Google

AN EXCURSION TO BROCKERDALE.

By J. Hepworth.

The members of the Wakefield Naturalists' Society having had under consideration the desirability of having a field day, at length fixed upon Saturday, the 17th September, as most suitable to all parties.

The day opened very auspiciously, and, with the exception of one rather heavy shower, turned out all that could be desired.

We left Wakefield Station at eight a.m. After a short but pleasant ride we arrived at Pontefract: we at once struck off for Went Vale, not, however, taking the nearest course, but making a detour in order to meet with certain shells, &c. In passing along on the left of the town, our attention was arrested by the ruins of the castle. The sight of it took our minds back into the long past, vividly recalling many an act of tragic horror of which it has been the too frequent scene. Here perished Richard II. by the hands of Exton and his bloody assistants,—Scroop, Archbishop of York, by the command of Henry IV.; and Rivers, Grey, and Vaughan, by the cruel treachery of the fratricidal king Richard III. Our thoughts were recalled from the past to the present by the voice of our conchological chief, who directed our attention to a great number of molluscs, which were feeding upon an adjoining, damp, sunny bank. Out flew our collecting cans and boxes, and to work we went in a thoroughly workmanlike manner. *Helix aspersa*, *H. arbustorum*, *H. nemoralis*, (many varieties,) and *H. caperata* were our principle captures here. By the way *H. aspersa*, *H. arbustorum*, and many other molluscs are now retreating to their winter quarters, from which many will never return. We found many large clusters of *H. aspersa* in crevices of the walls, the mouths of the shells being fast sealed up with a thick coat, or rather coat within coat, of mucus, to protect the inmates from the stormy blasts of approaching winter.

From thence we walked briskly on, still, however, to use a nautical phrase, "keeping our weather eye open," till we arrived at Shilling Hill Bar. Here, on a triangular plot of ground, at the junction of two roads, we found the grass literally covered with *H. caperata*. They were all busily feeding. Each step we took we crushed in the pretty little domiciles of dozens of these small creatures. After examining these for a short time we proceeded onwards through the little village of Darrington towards

Digitized by Google

Went Bridge. We saw few plants in flower worthy of note. *Pulicaria dysenterica, Mentha hirsutum, Bartsia Odontites, Poterium Sanguisorba, Pimpinella Saxifraga,* and *Euphrasia officinalis,* were the chief.

Shortly before reaching the latter place our snail-hunting captain directed our attention to a heap of stones, beneath which we found the following shells,—*Pupa pygmœa, P. umbilicata, Zua lubrica, Clausilia nigricans, Balea fragilis, Helix hispida, H. rotundata, H. fulva, Zonites crystallinus,* and *Zonites cellarius.* We spent a full hour among these stones, eliciting many bright remarks from passers-by, who were chiefly threadbare blacklegs from Doncaster races; however, their sneers fell upon our ears unheeded, as we felt that it would have been a self humiliation, even in a "snail hunter," to have deigned to reply to them.

We now journeyed merrily on to Went Village, where we were joined almost immediately after by a second detachment of our party, who could not conveniently start with us from Wakefield. They had taken the nearest route from the station, and were thus enabled to reach Went Bridge almost as soon as we did. Being thus happily united, we started in a body for Brockerdale, the property of John Hope Barton, Esq., through whose kindness we were permitted to explore the vale. We soon arrived at our destination, and were much pleased with the pretty woodland scenery. In several places, on elevated ground, seats were placed. From these could be seen the valley stretched out beneath us, interspersed by wood and stream, and, here and there, bold cliffs of limestone jutting out amidst the trees. We noticed a variety of plants in flower—*Campanula glomerata, Reseda luteola*—in abundance, and others, including most of those already mentioned. We spent some time not unprofitably watching the black Ant—here plentiful—carrying on its various labours. Proceeding along the wood, Mr. Lumb detected a blind worm, *Anguis fragilis,* gliding among the long grass. His attempt to capture it was, unfortunately, unsuccessful. We were, however, more fortunate shortly after; we found an Adder, *Pelias berus,* basking in the sun beneath a tree. After an exciting struggle we succeeded in taking it. It proved to be a fine specimen, nearly two feet in length, and displayed its poison fangs rather more prominently than some of our party liked. It was soon chloroformed and confined in a small canister, and consigned to the pocket of the writer, to become, hereafter, a standing memorial of our much-enjoyed visit to Brockerdale.

A number of beetles were captured by Mr. Talbot, while the "pupa diggers" were tolerably successful in their researches. A few specimens

Digitized by Google

of *Helix lapicida* were secured. Mr. Oxley found upon the rocks *Asplenium Ruta-muraria*, and a single plant of the beautiful *Helianthemum vulgare*; the latter was also found in another part by Mr. Roberts.

The birds, generally speaking, were very mute, but the young larks were in full song, and reminded us forcibly of spring. At times we heard three or four at once carolling gaily in mid-air.

We left Brockerdale shortly after six, and arrived at Wakefield a little before nine p.m. There we separated, having all of us thoroughly enjoyed our day's excursion, and I have no doubt that when these present days shall become the "days of auld lang syne," many of us will look back with unmixed pleasure upon our day's visit to Brockerdale.

Lofthouse, October 1, 1864.

Observations.

The History of my Redstarts.—Previous to the year 1862, a pair of Redstarts had built and reared young regularly for four or five seasons, in a hole in a shed wall. A pair arrived as usual on the 24th of April, 1862. On the 27th the female unfortunately killed herself by flying violently against a window, from the hand of a thoughtless person who had caught it in an outhouse. I watched with anxiety how the male would deport himself after the loss of his mate. I missed him the day after, and supposed he had deserted for ever, but about the eighth day he returned, bringing with him another female. They immediately recommenced the business of nesting, and on the 29th of May both birds began taking food to the young. On the 6th of June I lost sight of the male, and concluded he had happened some accident; the female continued feeding the young and was very assiduous. On the 13th the young were nearly fledged; I saw one sitting on the edge of the hole viewing perhaps for the first time the outer world; the next day it left the nest, but could not fly, and I caught it and replaced it in its domicile, where it was much safer. The day following, however, I saw it again scrambling on the ground; no other young ones came from the nest. The parent constantly fed and tended it. I observed that she had a peculiarly beseeching way of calling it up from the ground, whenever a cat, (of which unfortunately I am pestered with many,) or any other enemy made its appearance. How the young Redstart escaped the jaws of these audacious enemies during the few days that

Digitized by Google

it could not fly, seemed to me truly miraculous; it did however survive. They remained two or three weeks near the nesting site, the old one always by the side of the young one, feeding it, keeping it up in the trees, and uttering unmistakable notes of alarm whenever an enemy appeared. When it descended to the ground to seek for itself the old one always called it up, fluttering over its head, seemingly in painful agitation. A few days after their disappearance it struck me to examine the nest, and to my surprise I found the male bird dead and decayed, and a young one also decayed. I attributed the death of the former, but perhaps wrongly, to poison, for I scarcely think they touch anything but insects, when these are abundant. In the spring I prevented a pair of Titmice from building in the Redstarts' hole, and otherwise preserved it specially for them, as I particularly wished to have further opportunity of observing their habits; but none came till the 12th of May. On that date I saw a male hopping about the old nesting site, but he shortly disappeared, and I saw no more all the year. This year I have seen none. The Redstart is one of the handsomest of our small birds. I have often been amused and interested in watching them of an evening. The male used to take his stand on the top of a small apple tree, as near as he could get to where his mate was patiently incubating her eggs. From this tree he would dart continually after the insects in the air, returning to the same branch after every capture. Sometimes he would rise perpendicularly, take an insect, then turn and descend with elegant motion to his perch. They only bred once in a season. One of their breeding notes is almost identical with the common breeding note of the Robin. I believe Redstarts are less numerous in many parts of England than they were twenty or thirty years ago; yet they are not at all uncommon where there are plenty of stone walls. This year I was up in the hilly parts of Yorkshire, in the breeding season, and I saw several pairs. It is rather remarkable that they should decrease in the cultivated parts of the country, in the central or eastern portion of Yorkshire for instance, where insects abound in greater numbers, and in greater variety than in the uncultivated districts where they seem to have maintained their footing. Abundance of proper food and suitable breeding places are the chief attractions to the migratory birds; and it appears almost contrary to what one might expect, that in this instance, the latter is the preponderating allurement.—G. Roberts, Lofthouse, Wakefield.

Digitized by Google

Destructiveness of the Wood Pigeon (*Columba palumbus.*)—The Wood Pigeon is a very great nuisance in this neighbourhood, on account of the havoc it makes on laid corn, among newly sown beans and peas, among young clover, and in turnip fields. The country being wooded with several large oak, ash, and fir plantings, they visit the fields by hundreds during the early and later parts of the year, when men are employed to shoot them, which is not an easy task, owing to their extreme watchfulness. A hut is made in the corner, or in the hedge of a field, near to the trees in which they take refuge when disturbed, or when resting from their plunder. In this hut the sportsman takes his station, waiting for a shot; sometimes a stuffed bird or two are placed among the clover or turnips, and near to the hut as a lure. Sometimes as many as forty are shot in a day in this way, and sometimes not one. They sell in York at from fourpence to sixpence each. A field near a large wood being very much injured by these pests, a hut was erected, and a man engaged to shoot them. About eleven o'clock in the morning, a pigeon was shot at and escaped with the loss of its tail, or the greater part thereof. The same bird was shot about seven at night, and was known to have visited the field, but out of gun-shot reach, six times between eleven o'clock and seven, and it might have visited it more. The owner of the field, learning the above circumstances, sent for me to see it opened. I opened it in his presence, and we found in the crop a good half pint of corn. Supposing that the number of visits had only been six, here was a destruction of three and a half pints of corn by one bird alone; but the visits may safely be presumed to have been ten, which would give five pints. I should think that the bird, a female, had a brood in some of the neighbouring plantings or woods. Multiply this quantity by the great flocks that infest our woods and fields, and the destruction of agricultural produce by Wood Pigeons is immense. The Duke of Richmond's keeper shot on the Home Farm, at Gordon Castle, a Wood Pigeon, in whose crop was found no less than 858 barleycorns, which would do more than fill half-a-pint.—JOHN RANSON, York.

Emberiza citrinella.—During one of my strolls in our lanes, I was much amused by the actions of a female Yellow Hammer. She endeavoured to draw me from her nest, to do which she feigned to be unable to fly. She fluttered before me for a hundred yards; the utmost extent of any one effort would not be more than four or five yards, and they appeared to be done with great difficulty. When she alighted on

Digitized by Google

the road she stopped to look at me until I nearly got to her, and then off she went. When I got about 100 yards, from the nest, she flew with great ease on the top of the hedge, and bade me good speed. I had never before seen or heard of the Yellow Hammer practising such tricks.—J. Ranson, York.

Nesting of the Missel Thrush. (*Turdus viscivorus.*)—All Oologists know that the nest of this bird is bound round and round with long roots, it is not however always content with them, but often appropriates costlier things. Two years ago a servant girl lost from the garden hedge two pieces of lace, each about two yards in length. About three weeks after it was lost it was found woven into the nest of a Missel Thrush in the same garden. Sometime before that, but in another village, a cambric handkerchief was found woven into the structure of another nest. Mr. Thompson, in his valuable History of the birds of Ireland, puts on record the loss of a cap and a yard of lace, used for the same purpose. John Ranson, York.

Fecundity of the Burying Beetle (Necrophorus vespillo.)—One of our half grown ducks having been accidentally killed, it was thrown on the manure heap, in the garden. In the course of a fortnight, it was completely consumed by the larvæ of the Burying Beetle. Every bone was perfectly cleaned, and the soft parts of the quills were all consumed. The straw in the manure heap prevented the beetles from burying the carcase, so that it was fully exposed to view, and I examined it twice to see if I could discover more than a pair, but I could not. The number of grubs was truly astonishing, the carcase swarmed with them; a naturalist friend thought there would be nearly a pint of them.—J. Ranson, York.

Acidalia inornata.—I have eight specimens of the above insect which have come out this week from a batch of eggs I got in the beginning of last June. Is not this an unusual time for its appearance? The remaining larvæ are about a quarter of an inch long, and it appears to me they will hybernate, if so, this insect must be double brooded.—Wm. Hicks, St. John's Road, Sheffield, Sept., 28, 1864.

Notes and Queries.

Cleaning Skeletons.—Can any of the readers of the "Naturalist" inform me of any safe method of cleaning and bleaching skeletons of animals, which have been discoloured through exposure.—W. H. C.

Digitized by Google

Original Articles.

AN ASCENT OF CROMAGHLAN MOUNTAIN IN QUEST OF LIMNÆA INVOLUTA, (*Thomp.*)

By W. Hill Evans, Esq., M.D.

On the 24th of June I was at Killarney, taking a brief holiday. I determined to avail myself of the opportunity of ascending Cromaghlan Mountain, and, if possible, procuring some specimens of *Limnæa involuta* (Thomp.,) from the tarn on its summit, the only known habitat of this Mollusk. A very brief narrative of my expedition may not be uninteresting to some of your readers.

My party were staying at the Victoria Hotel, at the bottom end of the lower lake. Cromaghlan Mountain skirts the south-western shore of the upper lake, rising above the mail road from Killarney to Kenmare; it is about five miles from the hotel. I came into Killarney in time to take a seat on the car, which runs daily from this town to Kenmare and Glengariff, leaving at ten a.m., and was set down at the tunnel on the Kenmare Road, a little before eleven. If time is no object, I should recommend walking rather than riding; the road is very pretty, and in many places there are beautiful peeps at the lakes; but to those who are desirous of saving both time and strength, the car offers great advantages, taking you easily and quickly over the first portion of the way. Passing the short tunnel through which the road runs, I, accompanied by a guide, turned sharply to the left, and the climb at once begun. On getting over the road wall, you turn your face almost back towards Killarney, looking along the road you have traversed, but keeping rather to the right, and steering for two prominent knolls near the summit of the mountain. The climb is stiff, but is nowhere very difficult—a little floundering through boggy ground, a few slips over occasional rocks, a scramble or two through the brambles—and, if you are not tempted to linger too long in contemplating the glorious panorama of mountain, wood, and lake, which stretches around you, you will reach your goal in little more than half an hour. Some friends assured me that they occupied two hours in the ascent, but they attempted it by a different route, leaving the high road much nearer to Killarney than I did, at Mr. Hubert's shooting tower. I believe that the

Digitized by Google

path I have indicated will be found the easier and shorter. Having got to the knolls before-mentioned, which appear to form the summit of one of the two ridges into which the mountain is divided, you see to your right the little lake you have been in quest of. Its eastern side is almost overhung by the perpendicular wall of the higher ridge of the mountain, altogether precluding access in that quarter; the remainder of the lake being surrounded for the most part by bog. The water, impregnated by vegetable matter, is almost of a coffee-colour, but generally clear, and the whole region has a wild and desolate aspect, strangely contrasting with the charming scenery we have just left. A thick drizzling rain accompanied with a sharp wind did not improve matters on the day of my visit, and added greatly to the difficulty of procuring shells.

During the first quarter of an hour I searched diligently on the leaves and stalks of the water plants growing in the lake, and scooped up quantities of mud, which I carefully examined, but not a shell could I find. This was rather discouraging, and my ardour was getting somewhat damped, when a cry from my guide, who was at some distance, soon brought me to his side, and, to my intense chagrin, I found him ruefully contemplating the broken fragments of a splendid specimen, which he had just taken, I got him to point out the spot where he had seen it, and found that it had been crawling on the side of a small rock, which jutted into the lake. Water, rock, and mollusk were nearly of one colour, but by kneeling down besides the tarn, and putting my face almost close to the surface, I was able to see to some distance into the water. After gazing steadily for a few minutes, I thought I discovered two *Limnæas* crawling up the side of the rock, and a little careful manipulation with the scoop soon put me in possession of the prize. I spent about two hours at the lake, and took eleven specimens of the *Limnæa* in addition to the first which the guide had broken, and in every instance the mollusk was either crawling on rocks, or free, never attached to aquatic plants, or found in the mud. Had the day been bright and calm, I dare say I should have collected a greater number; but where the breeze rippled the surface of the water, it was impossible to see anything accurately, even at the depth of a few inches, unless it differed much from the brown tint of the water.

Owing to the unfavourable state of the weather, and the constrained position I was forced to assume, it was impossible to observe the animal very accurately in the water: but, although I looked for it, I was unable to detect the mantle which is said to cover the greater part of the

Digitized by Google

shell. I transferred them to a box, with some cotton wool in it, kept them in my pocket the rest of the day, and kept them in the box from this (Friday) forenoon until late on the following Monday evening, when I got home; they were then transferred to a tumbler of water, with a little Anacharis in it, and they seemed as lively and fresh as if they had been but an hour caught. They moved about rapidly, and with a peculiar continuous gliding motion over the sides of the glass, sailing on steadily, so to speak, without any of the jerking mode of progression so common in most of the gasteropods. They gradually died off, one surviving a fortnight; but during the time that I had an opportunity of observing them in captivity, I never could discover any portion of the mantle expanded over the shell. I paid particular attention to this, as Mr. Jeffreys, in his valuable work on British Conchology, states that Dr. Percival Wright informed him "that the greater part of the shell in this species is covered by the mantle, as in *L. glutinosa*," while from a remark of Professor Goodsir, which he quotes, he says, "it might be inferred that the mantle has not the expanded lobe which is peculiar to the sub-genus Amphipepla." It is highly desirable that some more accurate observations should be made on this point. Mine cannot be called accurate, for I was unable properly to see the animal in its native habitat, as I before stated; and it is very probable that its mantle may have been retracted when I put it into a tumbler containing such an uncongenial element as pure water.

Bradford, Yorkshire, Oct. 8th, 1864.

NOTES ON THE ROTIFERA.

By J. Cash, Warrington.

No. 3.—The Floscules.

Some of the animalcules to which the name of Rotifera has been applied are not aptly designated. The characters of the order depend, not so much upon the presence of a rotary organ, (for in some species, such as those we are about to consider, as well as the Stephanoceros, no such organ is visible,) as upon certain internal features of organisation. Great difference of opinion seems to exist among naturalists as to the rank

Digitized by Google

which they should hold in the animal kingdom,—some considering them allied to the Crustacea, and others to the Annelids, or worms,—but, leaving out of sight the question of classification, all are agreed that the most important character, and that by which they are most readily known, is the possession of a peculiar masticatory apparatus. This, which differs somewhat in form and complexity, is called by some authors a gizzard, but Mr. Gosse states that he has reason for believing it to be a true mouth. They also differ, among themselves, in the fact that certain genera—as *Floscularia*, *Stephanoceros*, *Œcistes*, *Melicerta*, and others—attach themselves to plants or other objects in the water, whilst others, and by far the greater number, are constantly roving about in search of prey; and it is not too much to add that, in the circle of minute life in which they move, they are as voracious as any of the wild animals which haunt the jungles of Africa. It must not be supposed, however, that the fixed species are less predaceous. If possible, they are more so, as I can myself testify. They are the very tyrants of their watery home. Often, when inspecting a Stephanoceros, have I seen lively, rollicking Euglenæ, one after another, entangle themselves in its meshes, and once within the crown—once within the mouth-funnel of a Floscule,—there is no possibility of escape, unless by accident. I have observed as many as a dozen small bodies in such a position at one time: when something has occurred to drive the creature into its case all have escaped. It is common to see their capacious stomachs filled with greenish matter, which is nothing more than the half-digested forms of Euglenæ,—sometimes there are whole ones which have to undergo the process of mastication,—yet they continue to take whatever comes in their way.

Some species of *Floscularia* may commonly be found at this season of the year upon the leaves of *Myriophyllum*, *Lemna*, and other water plants; and where they do exist they are usually abundant. Those who possess aquaria, I think, will have no difficulty in finding *F. campanulata*,—probably *F. ornata*, and others—if there has been no disturbance of the plants for several months. The first mentioned species has proved to be extremely common in this neighbourhood. I find it in my aquarium usually upon Conferva. It may not be amiss here to state that if an aquarium is kept for the purpose of supplying the possessor of a microscope with Rotifera, and Infusoria generally, it must not be disturbed oftener than is absolutely necessary. To keep it as a fine parlour ornament is a different thing; it must in that case be attended to; the sides—or at least the front—must

Digitized by Google

be periodically cleaned; the plants must be removed when they get unsightly, and others substituted; but to think of making it valuable as an adjunct to the microscope, and be perpetually dabbling in it, is hopeless. As a rule the two things, a nice parlour ornament and a useful reservoir of minute life, are incompatible. The principle on which I construct my aquarium is this: I cover the bottom with about two inches of well-washed sand, (silver sand is best,) fill up with water, and then plant *Myriophyllum*, the water Ranunculus, the common water Moss, (*Fontinalis antipyretica*,) which is an excellent aquarium plant, *Nitella flexilis*, and a sprig or two, (not more, on account of its rapid growth,) of *Anacharis Alsinastrum*, throwing in a small quantity of *Lemna*, and perhaps a few detached leaves of the water Violet, (*Hottonia palustris*.) Other plants may be used, but as a rule they ought to be the finer leaved species. After allowing it to stand a few days I turn in three or four minnows, and such other small fry as fancy may dictate, always, of course, avoiding those pugnacious brutes the sticklebacks, which ought to have an aquarium to themselves. I then let it take its course, and, assuming that the water is in a state of purity, do not disturb it for twelve months or so. Elegance is no object so long as I make my aquarium subserve the purposes of the microscope. When two or three months have elapsed I have no difficulty in finding any number of Rotifers that I may want. There is *Rotifer vulgaris* in myriads; there are also *R. macroceros*—which at one time was quite as abundant as *R. vulgaris*—and many other species, including *Scaridium*, *Monocerca*, *Salpina*, *Metopidia*, *Pterodina*, and many others; but, what are perhaps most to be desired, the attached genera, *Stephanoceros*, *Floscularia*, *Œcistes*, *Melicerta*, and so on. This is a list which is sufficient to whet the appetite of any amateur microscopist. A few days ago I made a random dip into my aquarium—which has been left undisturbed for about five months—and, on placing a few leaflets of *Myriophyllum* under the microscope, found that I had netted about half-a-dozen specimens of *Floscularia campanulata*, two beautiful Stephanoceri, and several free rotifers, both loricated and illoricated, besides other animalcules and one or two desmids. The Floscules are at present very numerous, although not many weeks since there was not one to be found. It is interesting to note how, at certain seasons, different species of *infusoria* predominate. All through the summer months my water plants have been covered with Stentors—not a leaf could be detected which was not swarming with them—now they have almost entirely disappeared, and the Floscules have presented themselves;

Digitized by Google

and I should not be surprised if, during the winter months, the Tardigrada (water bears) have their turn; for one winter they were so abundant as to supersede, in number, everything else. The common rotifer (*R. vulgaris*) is common at all times of the year, and in all places; and the little *R. macroceros*,—first discovered and named by Mr. Gosse, which only seems to be a variety of *R. vulgaris*, possessing a longer antennal process,—when it does appear, is generally most abundant, and is to be found among the loose conferva which grows upon the sides of the tank. But the marvel is that when these things have had their run, however abundant they may have been, they almost totally disappear. The Stentor (which, by-the-bye, does not belong to the family of rotifers) is the most remarkable. You may see the trumpet-shaped bodies of these creatures at one time studding the plants,—to which, however, they have no permanent attachment,—or, by means of their cilia, working their way through the water with a spiral motion; and when you look at your tank a week or two afterwards you find that they have (as Mr. Slack expresses it) "gone to smash," by a process peculiar to infusoria; and which Dujardin politely describes as "diffluence." "The integument bursts and its contents disperse in minute particles, that in their turn disappear, and scarcely leave a wrack behind." This, however, cannot be the case with any species of Rotifera,—whose organisation is altogether different from that of the ciliated protozoa,—and it is difficult to account for the sudden disappearance of certain species which have, for a time, held unlimited sway.

But now as to the Floscules. The following are the generic characters.

"Frontal lobes short, broad, knobbed, expanded; ciliary setæ very long, crowded about the knobs, jaws each of two teeth."

These creatures are each furnished with a thin diaphanous case, resembling that seen in the very young *Melicerta*. It often happens that this case can only be detected by colouring the water with indigo, or some other pigment; but sometimes in aged specimens, though very rarely in *F. campanulata*, it is studded with flocculent matter about the base. *F. ornata* is said to be the commonest of the species, but in this neighbourhood it is by no means so common as the other species which I have named. I have never yet had the good fortune to meet with a specimen, though a friend of mine assures me that he has. I cannot forbear quoting Mr. Gosse's description of this lovely creature. He says: "It is far inferior in size to Stephanoceros, and cannot compete with it in majesty

Digitized by Google

of form, but it perhaps surpasses that fine species in elegance and grace. It may be compared to a long tubular flower with a five-angled petal, somewhat like that of a Convolvulus, the tube swollen, and contracted below the lip, and seated on the end of a long stalk." He gives the dimensions of this beautiful Floscule, as measured by himself from an average specimen, as follows —" Height of the case, $\frac{1}{90}$th of an inch; height of foot, $\frac{1}{100}$th; of foot and body to tip of tallest petal, $\frac{1}{60}$th; of entire animal from base of tube to tip of longest bristles, so far as they can be traced, about $\frac{1}{35}$th. They are, however, very variable in size, but not so large in any of the species as to be distinctly perceptible to the naked eye." The body, he goes on to say, "is sub-oval, sometimes very regular, but at other times a little enlarging at the upper end. Above this there is a constriction or neck, but not so well-defined a collar as in Stephanoceros. From this neck, the beautiful flower-like disc opens, an expanse of the most exquisitely delicate and brilliantly transparent membrane, which forms five blunt points, equidistant and somewhat rising, so as to give a trumpet-like contour to the outline. One of the angular projections of the disc is considerably higher than the rest, and this is the dorsal one, so that the plane of the five lobes is not horizontal, but oblique, facing forwards. A very remarkable feature in the animal, and one to which it owes much of its peculiar elegance, is, that each knob is beset with straight bristles of exceeding slenderness, and of great length, which are not set in one plane, but radiate in every direction. Ehrenberg says there are from five to eight on each angle, but probably the poverty of his instruments deceived him, for I have counted from forty to fifty on each knob. When the animal contracts all the bristles are drawn parallel into a single pencil, and concealed within the body; and this arrangement is well seen as they slowly protrude in the act of eversion. They are motionless when expanded, but while protruding, and in the instant of expanding (falling, as Mr. Slack says, on all sides in a graceful shower,) the pencil is seen to be agitated with a close and rapid thrill or wave, which runs along it, and looks much like the flickering of a candle flame. It ceases the instant the disc is expanded."

Whilst this paper was in course of preparation I made an excursion to Hill Cliff—an attractive spot about three miles from Warrington—with other members of the Field Naturalists' Society; and, on coming to a small pool in the field near the entrance to the Dingle, I thought it advisable, although the place did not seem to promise much, to fill a bottle with

Digitized by Google

water, and a few sprigs of star-weed, (*Callitriche,*) about which there was a good deal of Conferva growing. I never like passing a place without trying what it is worth. On reaching home I placed a fragment of the star-weed under my microscope, in order to ascertain whether I had anything more than common; and almost the first object that struck my eye was a Floscule. What species was it? At first sight it was difficult to tell, for the timid creature was safely ensconced at the bottom of its case. Was it *F. campanulata?* I could not reconcile it with previously examined specimens, for the case was completely covered with extraneous matter; and, moreover, the creature had half-a-dozen, or more, eggs at her foot, a number rarely, if ever, seen in *F. campanulata.* What then? Was it *ornata?* No: it was larger than I should imagine *ornata* to be. Presently it began to venture forth, and I had the prospect of an early solution of the question. I caught sight of something like an antennal process, when my gratification was momentarily checked by the appearance of a water-flea, which came down upon my favourite with a rush, and sent it once more to the bottom of its dwelling. There was something about it different from what I had seen in the other species. Could it be *cornuta?* I waited its reappearance with some little anxiety. "Order having been restored," it made a second attempt to unfold its lovely flower, and this time without interruption. Slowly the setæ, which were of unusual length, separated, and were thrown out in a most charming manner; and the high dorsal lobe was seen to be furnished with a waved finger-like process,—a decisive indication that it was *F. cornuta,* and nothing else. I considered this a good catch. On further examination I found that the star-weed, and other small plants, were swarming with these beautiful creatures; and I made a visit to the same pond the next day for a supply for my aquarium. Upon a single leaf of *Lemna minor* I counted upwards of a dozen individuals.

This species, as well as *campanulata,* was first described by Dr. Dobie in 1849, in the "Annals of Natural History." The Micrographical Dictionary speaks of both as "doubtfully distinct;" but, Mr. Gosse says, without reason, for having repeatedly met with both, he can vouch for the accuracy of Dr. Dobie's descriptions and figures, and for the permanence of the species. *F. cornuta* was elaborately described by Leydig, in 1854, as if new, under the name of *F. appendiculata,* and Mr. Gosse himself described it in manuscript in 1850, before he was aware of Dr. Dobie's memoir.

Digitized by Google

SPONTANEOUS EXOTICS.

By James Britten.

[*Continued from page* 184.]

Order III.—Papaveraceæ.

Papaver nudicaule, L. "Was found by Professor Giesecke, of Dublin, growing singly among rocks and glens in the hills at Achil-head in the North-West of Ireland." *Eng, Bot. v.* 4. Some gross error must have occurred, as no one else has ever seen the plant in the locality given. It is a native of Siberia.

Argemone mexicana, D.C. Is included by Mr. Winch among the plants of the "ballast hills of the Tyne and Wear;" but has not been met with elsewhere in England. It is, as its name denotes, a native of Mexico.

Escholtzia californica, D.C. This common garden annual occurs not unfrequently on rubbish heaps near the Metropolis. I have this year found it in such situations in Battersea Park, and in the grounds of Chelsea College.

E. crocea, Benth. "I found it growing among stones between Dron and Nydie Mill, Fifeshire, at the edge of the footpath." It "likewise occurs in great abundance in a piece of ground lying waste in consequence of the Edinburgh and Northern Railway operations." G. Lawson in *Phyt. iii.*, 136. *O.S.* (1847.) Both this species and the last are natives of California.

Glaucium phœnicium, Gaert. This plant was at one time believed to inhabit sandy fields in the county of Norfolk; but time has shown that if it ever occurred there it could only have been as a casual introduction: it has also been reported from Portland Island. In Irvine's *London Flora*, published in 1838, it is stated to have been "found near the turnpike, about a mile from Brighton, on the beach" (p. 302); and in this neighbourhood it appears to have been noticed as recently as 1859; for in *Phyt. iii.*, 285. *N.S.*, we read that Mr. Gerard Burton, on June 14th of that year, "gathered a single specimen on the seashore near the eastern end of Brighton," which specimen, he adds, "does not at all favour the idea that it was an escape from cultivation." In *Phyt. iv.*, 156. *N.S.*, this locality is stated to be "not far from Hove." In Surrey it appeared plentifully at the Wandsworth steamboat pier locality, where it continued from 1852 to 1855, (see *H.B.P.* 726); here "some of the examples unquestionably perfected

Digitized by Google

seeds." *Phyt. iii.*, 337, 338. *N.S.* In Yorkshire it is stated by Mr. Baker to be "an occasional straggler from cultivation. During each of the last three or four years I have usually noticed a few plants in waste places, in the vicinity of Thirsk, Rievaulx, etc." *Supp. to Flora of Yorkshire* (1854), p. 41. In his "*North Yorkshire*" Mr. Baker gives the additonal localities of Cotherstone and Ainderby Steeple (p. 199). The above evidence is sufficient to show that *G. phœnicium* has no claim to a place among our native plants.

Chelidonium laciniatum, D.C. "Observed plentifully among the ruins of the Duke of Leeds' seat at Wimbleton by Mr. Martin." *R. Syn. iii.*, 309. Since the period of the above notice, the plant appears to have spread in the neighbourhood, for in *H.B.P.* 726, it is stated to grow "about Wimbledon, under hedges and on old walls." "A very doubtful native." *Bab. Man. ed.* 5, p. 17.

Hypecoum procumbens, L. This native of the South of Europe formerly occurred on the waste ground at Wandsworth steamboat pier. *Phyt. iii.*, 334. *N.S.*

Platystemon californicum, Benth? This, "or some other more recently introduced species," appears to have been found near Birkenhead. See *Phyt. iv.*, 384. *N.S.* It is a native of California.

Order III.*—Fumariaceæ.

Dielytra formosa, D.C. "Subspontaneous, or planted in a wood near the High force of Seamerdale, plentiful in 1859, *Wheldon!* A native of America." Baker's *North Yorkshire*, p. 199.

Order IV.—Cruciferæ.

As might be supposed, so large an Order as this furnishes a proportionate number of introduced species, of which besides those which follow, there are several as yet undetermined.

Iberis umbellata, L. This common garden annual is a native of the South of Europe, and occurs not unfrequently on waste ground near the Metropolis. I collected it last year from the waste ground at Kew Bridge: and have this year met with it in some abundance about Battersea Park; it has also recently occurred on waste ground near the Wimbledon railway station. In the *London Flora*, p. 162, the "Old Palace, Croydon," is given as a locality for it. I have seen a specimen gathered in June last in a cornfield near Medmenham, Bucks, where it occurred in small quantity; and in the following month, I observed a single plant growing in the

Digitized by Google

centre of the Hughenden Woods, in the same county, a rather remarkable habitat for the species.

Clypeola Ionthlaspi, L. Is enumerated in the *London Catalogue*, p. 16, among the plants "erroneously recorded, or subsequently extinct in Britain." I have met with no reference to it in the many works which I have consulted. A native of the South of Europe.

Farsetia incana. Br. "In the year 1766 I found a considerable quantity of this plant near the rope-walk at Weymouth, and on the spot where Gloucester Row and the Royal Palace now stand. It was lost in three or four years after that period." Pulteney, as quoted in *B.G. i.*, 226. It appears to have occurred under similar circumstances at Lewes, Sussex, where it sprang up "about fifty years ago, on ground broken up for building on. I knew it for a few years as a weed in the recently formed gardens; but I believe it has long since disappeared." W. Borrer *Phyt. v.*, 46. *O.S.* (1854). It is also enumerated by Winch among the plants of the ballast hills of Tyne and Wear.

Lunaria rediviva, D.C. This appears to have been the plant recorded by Gerarde under the name of *Viola Lunaris sive Bolbonac* as having "been found wilde in the woods called Pinner, and Harrow on the Hill, twelve miles from London; and in Essex likewise about Horn church." *Ger. Emac.*, 464. Mr. George Jerdon states that it is an occasional visitor in the neighbourhood of Bewdley, Worcestershire. See *Phyt. i.*, 361. *N.S.* I have recently received a specimen from Mr. Cockshott, of Manchester, who found it on the sands of Morecambe Bay, Lancashire, in June last. A native of Germany.

Camelina dentata, Pers. "Cultivated fields near Castle-Howard; H. Ibbotson." *Supp. to Flo. Yorkshire*, p. 44. "Drawn from a specimen collected near Virginia Water." *E. Botany, ed.* 3, *i.*, 200. In all probability this has as much claim as *C. sativa* to be ranked among the plants of this country. Professor Babington (*Manual ed. v.*, p. 31.) refers all the British examples of *Camelina* to *C. fœtida*, Fr., and states that he has never met with *C. sativa*, Fr., nor *C. sylvestris*, Fr.

Neslia paniculata, Desv. Mr. Irvine has collected it "during several years in the vicinity of Chelsea and Battersea, and especially near the steamboat pier, Wandsworth." *H.B.P.* 710. A South of Europe plant.

Lepidium sativum, L. The number of localities for a plant so much cultivated for domestic purposes is of course very great. In Essex, it appears to be frequent, occurring at Sampford, Walden, Navestock, and

Digitized by Google

Shoebury (*Flora of Essex*, 33.); also on and about the railway near Wivenhoe (*Botanist's Chronicle*, p. 77.); and I have observed it in similar situations near Ingatestone. In Kent, it occurs near Dover: and in Surrey I have collected it on Wimbledon Common, Putney Heath, at Kew Bridge, Battersea, etc. In Middlesex a few specimens may usually be found about Parson's Green, near Fulham, and in the grounds of Chelsea College; and it is recorded from cornfields at Roxeth by the Rev. W. M. Hind (*Phyt. v.*, 204. *N.S.*); this is the most natural locality for it with which I am acquainted. In Lancashire I am informed by Mr. Cockshott that it occurs on the banks of the Mersey, at Nortken, near Manchester; in Worcestershire it occurs about Worcester, etc., and seems "pretty well naturalized." (See *Phyt. iv.*, 970. *O.S.*): in Yorkshire it grows on "river banks and waste places." (*Supp. Flo. Yorkshire*, p. 43.); and in Durham it is recorded from West Hartlepool, and the ballast hills of Tyne and Wear. In all of these localities, with the exception, perhaps, of that at Roxeth, there can be little doubt but that the plant is a garden escape; and it probably occurs as such in most of the English counties. I have no record of its appearance in Scotland or Ireland.

L. Iberis, Poll. Appears, from a review in *Phyt. ii.*, 113. *N.S.*, to have occurred in a wild state about Oxford; it was observed by Mr. Irvine at Wandsworth steamboat pier, but "only once, and then but one specimen." *Phyt. iii.*, 339. *N.S.* A native of the South of Europe.

Vella annua, L. "Found by Mr. Lawson on Salisbury Plain, not far from Stonehenge." *R. Syn. iii.*, 304. In the 3rd edition of *English Botany*, now publishing, it is stated, on the authority of the Rev. W. W. Newbould, that "the plant which represents it in the Sloane herbarium is *Reseda lutea*." (*i.*, 224.); and this renders it probable that the original notice was erroneous. The plant has also occurred at Wandsworth steamboat pier, where it was "noticed first in 1852, and in every subsequent year till 1855, in which it was not visible. In 1853 it occurred, but sparingly, on soil laid on Battersea Fields. The plant has disappeared at Battersea." (*H.B.P.* 711.) and also at Wandsworth. A native of the South of Europe, as is also the following.

Eruca sativa, Lam. "On the new quay at Wandsworth." J. T. Syme. *Phyt. iv.*, 862. *O.S.* This is the earliest notice which we have of the now well known station at Wandsworth steamboat pier. Here the plant continued "very abundant for several years." *H.B.P.* 705.

Crambe orientalis, L. "Escaped and wild, but not indigenous, at the

Digitized by Google

Bridge of Spey, near Fochabers," Elginshire. Rev. G. Gordon, in *New Botanist's Guide*, p. 499. A native of the Levant.

Rapistrum rugosum, All. "One of the very commonest of the exotic Crucifers in the Wandsworth steamboat station," *H.B.P.* 718. Here it occurred for some years, but has now disappeared.

R. perenne, All. At Wandsworth steamboat pier. See *H.B.P.* 798. "West Hartlepool ballast heaps, retaining its ground for many years," Rev. A. M. Norman, *M.S.* This is, like the last, a native of Europe.

Enarthrocarpus lyratus, D.C. "Has abounded in this [Wandsworth steamboat pier] locality for some years." *H.B.P.* 719. I obtained a single specimen from this station in 1862. See *Phyt. vi.*, 412. *N.S.* "Has been met with on rubbish heaps at Pendleton, near Manchester, by Mr. Richard Buxton." *Phyt. iv.*, 57. *N.S.* A native of Egypt.

Raphanus sativus, L. "Scarcely naturalized, though not unfrequent in cornfields near towns and villages." *H.B.P.* 718. I have met with it this year on Wandsworth Common, at Battersea, in one or two places, and in other localities. A native of China.

R. Landra, Mor. "Grows about Wandsworth and Battersea." *H. B.P.* 719. I collected two or three specimens from the Wandsworth steamboat pier locality in 1863.

Cardamine bellidifolia, L. This is another of the species formerly enumerated as genuine natives, but which subsequent investigation has failed to establish as such. "On the Rock near the Quarry, by Bath, in various places near the monastery at Rippon, and in Denbighshire." Merrett's *Pinax*, p. 20. In the two last-named localities, *Arabis hirsuta* appears to have been mistaken for it; (See *B.G. i.* 173, and *ii.* 702.) and this was probably also the case at Bath. In *R. Syn. iii.*, 300, it is said to have been "found by Mr. Newton on S. Vincent's Rock, by Bristol;" and Hooker (*British Flora, ed.* 2, p. 301.) records it from the "County of Clare, Ireland;" a very dubious native. But no examples from these localities appear to have been preserved, and it seems probable that a mistake, similar to that above-mentioned, must have again occurred. The locality upon which most reliance can be placed is the remarkably indefinite one of "Scotland," where it was "gathered wild, and sent to Dr. Withering," by Mr. Milne," (*With. Arr. ed.* 4, *iii.*, 565.); and from the 3rd edition of *English Botany* it appears that "in Withering's herbarium two examples of it are preserved, said to be from Scotland," (*i.* 224). No botanist has since found it in the kingdom.

Digitized by Google

Barbarea intermedia, Bor. This is an agrestal weed of comparatively recent introduction. It appears to have been first noticed by Mr. A. G. More, in the county of Armagh, Ireland, in 1844, growing "in cultivated fields, where it was an abundant weed, and I think some younger plants from roadsides adjoining were the same." *Phyt. iv.*, 88. *N.S*, In Yorkshire it appears to have been twice observed by Mr. Baker: in 1862 "in cultivated fields at the lower end of Bilsdale, on the slope of Easterside towards Hawnby," (*North Yorkshire*, p. 203); and in 1863, "in a second North Yorkshire station." (*Thirsk Report for* 1863, p. 6.) It has been seen in cloverfields "in the neighbourhood of Manchester," by Mr. Buxton and others, (*Phyt. iv.*, 103. *N.S.*); and appears to have been found by Mr. Hardy, at Hulme, in the same county. See *Phyt. iv.*, 88. *N.S.* In the 3rd edition of *English Botany*, it is recorded from "near Bowden, Cheshire; and Mr. J. G. Baker has seen it near Dorking, Surrey." *i.* 176. In the latter county it was "plentiful in a field of *Trifolium incarnatum*, near the Box Hill railway station; May, 1863," (*Flora of Surrey*, p. 360.); and here also was observed by Mr. Baker. In the *Thirsk Report* as above, we are told that Mr. Briggs sent, in 1863, "a specimen from Devonshire, from a quarry between Saltash and Plymouth;" a locality to which it may possibly be indigenous. It will probably occur in cultivated ground in other parts of the kingdom; but it has not yet appeared in Scotland.

Erysimum virgatum, Roth. The appearance and disappearance of this species in the neighbourhood of Bath is a very curious circumstance. In 1844 the place of *E. cheiranthoides* was here "supplied by this plant." C. C. Babington, in *Phyt. i.*, 310. *O.S.*, it is stated to be no longer found about Bath. It hath also occurred in Yorkshire, having been "met with by Mr. Ward, in Swaledale, between Reeth and Marrick." (*North Yorkshire*, p. 204.) It is a native of Portugal.

E. Perofskianum, Fisch. This common and ornamental garden annual occasionally occurs on rubbish-heaps, and was noticed last year on the waste ground at Kew Bridge. A native of Cabul.

E. orientale, Br. Appears to have grown in Ray's time on sea-cliffs, near Harwich, in Essex; and on cliffs about Bardsey, near Orford, in Suffolk, (See *R. Syn. iii.*, 293.) But as we have no record of its recent occurrence here, we must suppose it to have failed in maintaining its position. It has since been noticed in several other localities, though usually under suspicious circumstances: in Sussex it occurred in "fields near Mayfield and near Maresfield." (*Cooper's Botany of Sussex*, 1834);

Digitized by Google

and Hudson records it from "fields near Godstone and Marsfield," in the same county. See *Eng. Fl. iii.*, 202. It has also been seen "on the coast near Brighton." (*Phyt. iv.*, 156. *N.S.*) In Devonshire "it came up spontaneously in a field that had been ploughed to form a garden, in the centre of the new square, at Plymouth." (Rev. J. S. Tozer, in *New Bot. Guide*, p. 14.) And the same gentleman also finds it in fields and on cliffs by the sea in the same locality. See *Flowering Plants and Ferns of Devonshire*, p. 6. In Surrey, Mr. W. W. Saunders records it from "waste ground by a mill, near the Dorking railway station, where the seed was doubtless swept out with the refuse from the mill." *Flora of Surrey*, p. 309. And at Wandsworth steamboat pier it was "plentiful for several years. (*H.B.P.*, 699.) Here I observed several specimens as recently as 1862. In Hertfordshire a single specimen was found "on a newly-repaired towing-path, near Ware Mill, in 1841: the seeds had perhaps been brought with flax to the oil mill." *Fl. Hertfordiensis*, p. 27. In Durham, Winch records it from the ballast-hills of Tyne and Wear, and more especially from those of Bishopwearmouth. In Ireland, it is only recorded from "Dingle, Kerry, in flax fields," (*Bab. Man.* ed. 2, p. 24): and there is no notice of its occurrence in Scotland.

[*To be continued.*]

Observations.

Notes on the Ornithology of Norfolk.—Varieties.

I beg to notice the occurrence of the following varieties which are (with the exception of the last mentioned) in the collection of a person residing in this city, who is unable to give me information of the precise dates and localities of their occurrence, he having had them in his possession several years.

Turdus musicus.—An adult bird, the upper parts of its plumage of a uniform dull yellowish brown, margins of the feathers a shade darker; throat white; breast and sides very pale yellow, margins of feathers of a darker shade of the same colour; abdomen white; under surface of the wings and tail of a pale yellowish brown, which assumes a darker hue towards the tips of the quill feathers in the former, and the ends of the tail feathers. I did not ascertain the sex.

Fringilla cannabina.—An individual of this species has the head, neck, and throat white, intermixed with small patches of pale brown and yellow; back and upper surface of its wings and tail white; the margins of the

Digitized by Google

feathers of the back and upper wing coverts of a reddish brown; breast, abdomen, under surface of its wings and tail, white; assuming a slight yellowish tinge on the sides of the breast.

Sturnus vulgaris.—A mature specimen, the whole surface of its plumage white: the feathers of crown of head, neck, throat, and breast are terminated with a small round spot of glossy white; spots of a reddish hue are scattered over the back and lesser wing coverts, assuming a much lighter hue on the greater wing coverts, and in the margins of the wings and tail feathers; the under wing coverts are tinged with a pale reddish brown.

Hirundo riparia.—Mr. Knights, bird preserver of this city, informed me that he had sent to him for preservation about a month since, an albino variety of *Hirundo riparia.*—T. E. Gunn, Norwich, Oct. 21st.

Instance of Audacity in a Sparrow Hawk.—While out shooting yesterday I fired at a Snipe which fell about forty yards from me. When in the act of reloading a Sparrow Hawk pounced upon the Snipe and carried it off! but upon my shouting at him, he dropped the Snipe and flew away.—W. C. Horsfall, Horsforth Low Hall, Oct. 12th, 1864,

Occurrence of the Osprey near London.—Last Thursday, (Oct. 6th), as my birdstuffer, Mr. Briggs, was standing in the garden at Formosa, Cookham, he observed a large bird come slowly sailing over his head. He thought from its flight it would not stop, and he therefore did not fetch his gun which was at some distance, but stood looking at it. The bird, however, just as it got over his head made a circle in the air, and seemed to take stock of him. He called to a man to run for his gun but the latter arrived too late, as the bird had departed. He only escaped for a minute however, as a young man a few hundred yards down the river who was out shooting Wood Pigeons, saw the bird approaching and hit it in the wing, when it was despatched ignominiously by a blow from a boat-mop. It was at first said to be the Golden Eagle (*Falco chrysaëtos*, Lin.) but turned out to be a fine specimen of the Osprey (*Falco haliæëtus*, Lin.) It was sent elsewhere for preservation, so I was not able to learn the dimensions.—R. B. S.

Notes and Queries.

A few days ago I observed in a newspaper an account of a wholesale destruction of fish, (principally chub and barbel), this destruction was defended on the ground that chub and barbel destroyed the salmon roe. Can any of your readers inform me if it is an established fact in Natural History that the coarse fish destroy the salmon roe?—Piscator.

Digitized by Google

Original Articles.

ON THE BOTANY OF MALHAM.

By L. C. Miall, Esq.

Part I.

The list of plants which follows is one of several which were prepared by the writer while engaged upon the Flora of the West-Riding. It was subsequently thought sufficiently interesting to justify a separate re-publication, and the first part accordingly appeared in "The Phytologist" for July, 1863. (New Series, No. 99). The sudden extinction of that periodical, which ceased to appear after the number mentioned, put a temporary stop to the project, which is now revived under the auspices of "The Naturalist."

A few introductory observations may prove serviceable to those who do not know the locality in question. The little village of Malham, in Yorkshire, has long attracted visitors by the wonders of its scenery, and the rare interest of its flora. Ray, Willisel, Curtis, Dillenius, and Richardson are but a few of the older botanists who have left accounts, more or less extensive, of their discoveries in Gordale and the neighbourhood. For nearly two centuries the limestone rocks of that strange spot have been explored by an uninterrupted succession of naturalists, nor have their pains been ill rewarded. Much doubtless remains to be discovered in every corner of this comparatively well-examined country, but it is not probable that of those species of plants which are already determined, many will now be found at Malham for the first time.

Malham is situated at the head of Airedale. The river which gives its name to that valley rises at the southern end of Malham Tarn. After flowing about half a mile, it sinks, reappearing at the foot of the Cove, a distance of more than a mile. Another stream, equal in volume, rises from the heights and "clowders" north-east of the tarn, rushes through the precipitous cleft of Gordale, and under the name of Gordale Beck joins the other rivulet between the villages of Malham and Kirby Malham. A third tributary flows from Kirby Fell and Scosthrop Moor, uniting itself to the Aire about a mile below the fork.

Digitized by Google

The general aspect of this remarkable spot may be roughly indicated by the resemblance it bears to a staircase of grey limestone cliffs, alternating with grassy slopes, reaching nearly 2,000 feet at various points along its upper ridge, and descending to 650 feet above the sea-level in the valley below. The last irregular descent forms an arc of a circle, which, if completed, would have a radius of some five miles. In this arc of about 30° the Cove and Gordale Scar find their place. The tarn is high up on the broad terrace between the top of the Cove and the second great ridge, 1,200 feet above the level of the sea. The village of Malham lies about a mile from the foot of the Cove, at a height of rather more than 600 feet.*

It will be readily seen that such a piling-up of rocks as this is far from usual. The geological phenomena by which the scenery may be interpreted are no less extraordinary. To enter upon this interesting subject here is impossible, and it must suffice to say that Malham is situated on the edge of the Great Craven Fault, to which disturbance it owes the huge and precipitous limestone scars which now form its most characteristic feature. At the Cove the mountain limestone forms a band about 400 feet thick, with numerous vertical fissures. The valley of the Aire below the Cove is occupied by Yoredale rocks, consisting of alternating layers of limestone and millstone grit, with ironstone and coal in smaller quantities. The subject may be pursued further with the aid of Professor Phillips' "Illustrations of the Geology of Yorkshire," or his cheaper and more popular work on the "Rivers, Mountains, and Sea-coasts of Yorkshire."

So far as this list of plants is not drawn up from personal observations, it has been compiled from various MS. catalogues and printed materials. An excellent series of papers by Dr. Windsor (Phytologist, New Series, vol. i.), which contains a large number of Craven stations for the rarer plants has been consulted throughout. Most of his Malham references have been verified by the present writer. In all cases where information has been confirmed by the discovery of the plant *in situ*, the usual mark (!) is added. The figures which immediately follow the habitat indicate the number of British "counties" in which the plant has been found, out of 112 into which the island was divided by Watson in the Cybele Britannica. These numerals, quoted from the Summary of Distribution in the fourth volume of that work, will give an approximate idea of the frequency or rarity of

* The poet Gray has left an admirable description of Gordale among his letters. See his correspondence with Warton, October 18th, 1769.

Digitized by Google

the plant in question. The Roman numerals represent the month of flowering, and whenever the mark of verification (!) is appended to any of the stations of a plant, the time of flowering must be understood to apply exclusively to Malham and the immediate vicinity. In all these cases the numerals indicate the extreme times within which the writer has actually seen the plant in flower. The vertical limits are given in several cases where they have been distinctly traced. The commoner plants are omitted.

Botanists are invited to communicate any corrections or noteworthy additions.

LIST OF PLANTS.

RANUNCULACEÆ.

Thalictrum minus, L. The normal form is littoral.

T. calcareum, Jord. Grows near the top of Gordale! 49. vii.

T. flexuosum, Reich? (*T. eminens*, Jord?) Gordale! In some lists this is styled *T. majus*. The *T. majus* of Dr. Windsor's list (Phyt., N.S., i. 263.) is the same as the Gordale plant. vii.

Trollius europæus, L. Pastures above and below the Cove! 49. vi-viii.

Helleborus fœtidus, L. I have a specimen which is said to have been "gathered below Malham Cove, 1839." No botanist of my acquaintance professes to have seen the plant *in situ*. 29.

Actæa spicata, L. Gordale! Top of Malham Cove! "A few plants at the side of the brook below Malham Cove," Dr. Windsor. 3. v.

CRUCIFERÆ.

Thlaspi alpestre, L. Malham Cove. J. Tatham. Near Malham Tarn! "Very plentiful by the lead-mines betwixt Stockdale and Malham. Although this plant varies somewhat in form, in the stalk being simple, or more or less branched, etc., yet I respectfully submit whether the *T. alpestre* and *T. virens* of Babington, notwithstanding his general accuracy and very high authority, may not really be only slight varieties of the same species." Dr. Windsor. The Malham plant is *T. occitanum*, Jord. Probably all of Dr. Windsor's stations for *T. alpestre* belong to this species. Has he not mistaken *T. occitanum* for *T. virens?* The last-mentioned variety has not been found in Craven. Jordan, and not Babington, is responsible for the division of *T. alpestre*. 10. vii.

Hutchinsia petræa, Br. "On the higher part of the furthest east cliff in Awes Scar, near Malham Tarn," Dr. Windsor. I have found this plant at the height of 450 yards. 11. v.

Digitized by Google

Cochlearia officinalis, L. (Var. *alpina*, Bab. *C. grœnlandica*, Sm., not Linn.) Kirby Fell! Hawkswick Clowder? vii. viii.

Draba incana, L. Gordale! Hawkswick Clowder! Kirby Fell! 17. vii.

D. muralis, L. Walls in the village of Malham, J. Nowell. Rocks near the foot of Malham Cove! Gordale! Under Malham Cove, Dr. Windsor. 6. iv-vi.

D. verna, L. A specimen in herbarium, named *D. inflata*, Hook., but difficult to identify in the dried state, iii-v.

Arabis hirsuta, Br. Frequent on the limestone. Several unimportant varieties occur. 68. vi-viii.

CISTACEÆ.

Helianthemum vulgare, Gært. Gordale! Malham Cove! 69. vi-viii.

H. canum, Dun. Malham Cove! This plant, subdivided by Linnæus into *Cistus marifolius*, *anglicus*, etc., is by others regarded as merely a dwarf form of *H. vulgare*. I cannot agree with those who would unite the plants. The presence of stipules in one, and their absence in the other is a strong point of difference. Koch groups together *H. fumana*, Mill., and *H. œlandica*, Wahlenb., (which includes *H. canum*, Dun.), but *H. vulgare*, Gært., and *H. polifolium*, Pers. The following diagnosis was made upon fresh specimens in August, 1859.

HELIANTHEMUM CANUM, *Dun.*	H. VULGARE, *Gært.*
Root—Long, woody.	
Stem—Decumbent, shrubby, covered with numerous minute scars.	*Stem*—Procumbent, shrubby.
Leaves—Without stipules, ovate, opposite, flat, hoary beneath, hairy above.	*Leaves*—With stipules, ovate, opposite, flattish, hoary beneath, thinly covered with adpressed hairs above, margin slightly reflexed.
Racemes—Terminal, bracteate.	*Racemes*—Bracteate.
	Flower-stalks—Leafed to the top.
Sepals—Hoary, veins indistinct.	*Sepals*—Hoary only along the veins, intervening portions glabrous.
Petals—Æstivation rugose. Variable, but not so much so as *H. vulgare*.	*Petals*—Æstivation rugose. Varying widely in form and size.
Anthers—Subrotundate, notched.	*Anthers*—Pyrulate, rugose.
Style—Flexuose, twisted sharply at the base, reflexed, "inflexed at the apex," longer than the ovary.	*Style*—Longer than the ovary "bent at the base."
Seeds—Numerous, fuscous.	*Seeds*—Numerous, black.
Vertical Range—West Yorkshire, 400-450 nearly. North Yorkshire (J. G. Baker), 600. North of England (Cybele Brit. iv. 337), Lake Province, 200; Yorkshire. 600.	*Vertical Range*—West Yorkshire, 50-570. North Yorkshire (J. G. Baker), 0-700 North of England (Cybele Brit.). Lake Province, 360; Yorkshire, 600.

Digitized by Google

Synonyms—Cistus anglicus, L., mant. 245. *C. hirsutus*, Huds. 232. *C. marifolius*, Sm., E.B. 396. *C. vinealis*, Willd., sp. 2. 1195. *C. canus*, Jacq. a. t. 277. *Helianthemum œlandicum*, γ *canescens*, Wahlenb., succ. 333. *H. œlandicum*, γ *tomentosum*, Koch, Fl. Germ., ed. 2., p. 86. 7. viii. *Cistus Helianthemum*, L., sp. 744, E. B. 1321. *Helianthemum Chamaecistus*, Mill., dict. n. 1.

VIOLACEÆ.

Viola hirta, L. Malham Cove! Gordale! 58. iv. v.

V. lutea, Huds. Above and below the Cove! What appears to be the same as Mr. Baker's var. *hamulata* ("North Yorkshire," p. 207) in Gordale! 50. vi. vii.

CARYOPHYLLACEÆ.

Arenaria verna, L. (*Alsine*, Jacq.) "By the Calamine or lead mines between Settle and Malham, abundantly," Dr. Windsor. Rises to 650 yards or thereabouts on Hawkswick Clowder! Is Dr. Windsor sure that *A. Gerardi* grows in a "field between Stackhouse-Borrins and Feizor?" *A. laricifolia*, With., which he gives as the alternative, is not more likely, though it is said to be "localized by the Yore side at Hutton Conyers." 25. v-viii.

Stellaria glauca, With. Bogs near Malham Tarn, Dr. Carrington. 43. v-vii.

HYPERICACEÆ.

Hypericum montanum, L. Malham Cove! Gordale! 34. vii. viii.

GERANIACEÆ.

Geranium sylvaticum, L. Malham Cove! 37. vi. vii.

G. columbinum, L. At the foot of Malham Cove! Dr. Windsor. 52. vii.

G. sanguineum, L. Malham Cove! Gordale! 46. vii.

LEGUMINIFERÆ.

Hippocrepis comosa, L. Rocks above Malham Tarn, Dr. Windsor. Malham Cove! 32. vi. vii.

ROSACEÆ.

Potentilla verna, L. Malham Tarn, J. Tatham. Gordale! 19. v.

P. alpestris, Hall. Gordale! near Malham Tarn! between Grisedales and Malham Tarn? Dr. Windsor. 9. vii.

Rubus saxatilis, L. Dry banks, Gordale, J. Nowell. On the moor above Gordale! 43. vii. viii.

Digitized by Google

R. plicatus, W. and N. Malham Cove! I believe that the *R. suberectus*, Anders., said to have been found at Malham, must be referred to *R. plicatus*. 22. vii.

R. discolor, W. and N. Frequent in hedges near Malham and Kirby Malham, but not ascending the higher scars. 20. vi. vii.

Pyrus Aria, Sm. Malham Cove! J. Tatham and others. 41. v.

ONAGRACEÆ.

Circæa intermedia, Angl. Malham Cove, Dr. Windsor. vii. viii.

GROSSULARIACEÆ.

Ribes rubrum, L. Above Gordale, J. Nowell. This apparently belongs to the following.

b. petræum, Sm. Gordale! "Crevices of rock betwixt Gordale and Malham Tarn. Also above Malham Tarn, and on the banks of the rivulet above Gordale," Dr. Windsor. v.

R. alpinum, L. Gordale! "Found between Gordale and Malham Tarn, with *R. petræum*," Dr. Windsor. 20? v.

CRASSULACEÆ.

Sedum villosum, L. Malham Cove! 24. vii. viii.

S. sexangulare, L. "In 1801 I found specimens of what I considered to be this plant, on the left-hand just below Malham Tarn," Dr. Windsor. Roof of a small shed near Kirby Malham! Undoubtedly alien or sub-spontaneous in both places. vii.

SAXIFRAGACEÆ.

Saxifraga oppositifolia, L. Rocks on Malham Moor! 22. v?

S. granulata, L. Near the top of Gordale! "Under walls on the road to Malham," Dr. Windsor. 50. v.

S. hypnoides, L. Mr. Tatham refers the plant found near Malham Tarn to *S. platypetala*, Sm., (E. B. 2276.) which I have seen between Malham and Kilnsey. v-vii.

Parnassia palustris, L.* Malham Moor! "Very common in bogs and wet meadows," Curtis. 64. viii. ix.

RUBIACEÆ.

Galium sylvestre, Poll. (*G. pusillum*, L.) Above Gordale! Malham Tarn! 16. vii. viii.

G. boreale, L. Malham Tarn! Aire below Kirby Malham! 34. vii. viii., but usually later than *G. sylvestre*.

* Often placed among the Droseraceæ.

Digitized by Google

Reports of Societies.

Huddersfield Naturalists' Society.—The second Exhibition of objects of Natural History held by this Society was opened on Friday evening, October 14th, by the Right Hon. the Earl of Dartmouth. His Lordship has always been the firm friend and patron of this Society, giving them free access at all times to any portion of his woods and estates, which comprise some of the best Natural History collecting grounds in the neighbourhood of Huddersfield, and in proof of the appreciation in which this liberty is held by the members we may state that about three years ago they presented to his Lordship a very handsome case of Insects, all of which had been taken on his own estates.

His Lordship took the chair at seven o'clock, and after congratulating the Society upon the evident success of the Exhibition, both as regards the number and quality of the natural objects exhibited, and its prospects of success in a financial point of view as evidenced by the crowded state of the room; he alluded to a fact which had come under his special observation this year on his estates in Staffordshire, viz., the unusual abundance of the little insect vulgarly known as the ladybird, (*Coccinella 7-punctata*), and expressed the belief that no animal, however humble it might be considered or however small its size, was without its use and object in the great framework of nature. Although man undoubtedly had had given to him power over the birds of the air, the beasts of the field, and the fishes of the sea, yet he believed that when man exercised that power unduly by the destruction of any particular animal, he interfered with the arrangements of nature, and was certain to suffer for it by the increase of an animal of another class. Thus when one of his gamekeepers waged fierce war against the owls, the place shortly swarmed with mice; and when another destroyed all he could find in the shape of stoats and weasels, the consequence was that they were overrun with rats. Having referred to the loss sustained to the science of Natural History by the death of the late Mr. Woolley, who was a dear old friend and schoolfellow, his Lordship observed that a book entitled "Ootheca Woolleyana" was in the course of publication, which he should have gratification in presenting to the library of the Society, in parts, as it appeared, not only out of respect to the memory of his late friend, but also with the desire to place in the hands of the members that which he was sure must add to their pleasure and profit. His Lordship concluded his remarks by an-

Digitized by Google

nouncing that he had brought with him at the last moment a few little objects which he hoped the Society would accept for exhibition, not on account of any intrinsic worth which might attach to them, but as an evidence of the sincerity of his desire to contribute anything which he believed would be for their instruction or interest. These objects comprise a specimen of a bird captured on his estate in Staffordshire, and known as the Velvet Scoter (*Anas fusca*) a bird which was rare in the midland counties, but better known in the north; also a few photographs not remarkable except for some artistic peculiarities which he pointed out, and as representing a happy scene at a happy English home—his own.

The Secretary (Mr. B. Bradley) then read a short report of the present state and future prospects of the Society, which now numbers about 100 members; and although the subscription to the Society is only 4s. per annum, they now possess two Microscopes and a Library of 98 volumes of Natural History Works, some of them of a most expensive character.

The President (Alfred Beaumont, Esq.) expressed regret at the absence of the Rev. Thomas Hincks, B.A., of Leeds, who was announced to appear, but was prevented from doing so by indisposition: and he also stated that E. A. Leatham, Esq., M.P., had been invited to be present, and that he had replied by forwarding a cheque for £5 in aid of the Society's funds. In briefly explaining the leading features of the Society, the President remarked that it was accessible to every person, however humble his circumstances or position. The object of the Society was not so much to obtain funds as to cultivate the study of Natural History,

Joseph W. Dunning, Esq., F.L.S., Hon. Secretary of the Entomological Society of London, then addressed the meeting on the advantages accruing from the study of Entomology. Entomologists were not now looked upon with mistrust and suspicion as was formerly the case, but the advantages arising from a more intimate knowledge of even such minute creatures as Insects were felt and acknowledged by commercial as well as scientific men. Mr. Dunning adduced the deterioration of the silk crop, and the efforts which were being made by Entomologists to ameliorate the disease in the silk worm, in support of his view, and also dwelt at some length upon the cause of the failure of the turnip crop during the past summer.

Leo H. Grindon, Esq., Hon. Sec. of the Manchester Field Naturalists' Society, also enforced upon the meeting the desirability of an active

Digitized by Google

study of Botany, and the benefits which resulted from it, especially to the emigrant in distant lands, who would be able to judge whether a plant which he gathered for the first time was good for food or medicine, or was to be avoided on account of its probable poisonous qualities. He impressed upon his hearers the necessity of studying Botany in the field, by the dissection of living specimens, instead of being content with the examination of dead plants, or with simply amassing a large collection.

Peter Inchbald, Esq., also addressed the meeting on the desirability of studying nature in a fair and candid spirit, and not being led away by specious theories without a rigid examination of their truth.

The Gymnasium Hall, in which the Exhibition was held, is an oblong room 90 feet long by 33 broad. The walls of the room were entirely hid to a considerable height by cases of Birds, and below these a narrow Table running round the room was covered with drawers of Birds' Nests and Eggs, Coleoptera and Lepidoptera; a broad Table ran down the centre of the room on which were placed the Botanical and Geological specimens, with reserved spaces for articles of a miscellaneous character, and upon a Table on the Platform were placed the Mammalia and Reptilia in cases against the wall, and Conchological specimens in drawers upon the Table. By far the most imposing portion of the Exhibition was the Birds, numbering upwards of 560 cases among 36 exhibiters, and including some very rare birds. British Ornithology was exceedingly well represented, 260 out of 352 recorded species being shown in the room. The President exhibited a very fine series of British Birds; the excellency of the stuffing, and the neat uniform appearance of the cases, making them particularly conspicuous; among them was a fine White Tailed Eagle (*Falco albicilla*) the Pied Flycatcher (*Muscicapa atricapilla*), recorded in "The Naturalist" p. 26, a White's Thrush (*Turdus Whitei*) shot at Almondbury Bank, near Huddersfield, a Bee Eater, (*Merops apiaster*), from Cornwall, and the three Divers; this collection was also particularly rich in Terns and Gulls, containing among others *Sterna caspia, S. arctica, S. fuliginosa, Larus Sabini, L. Rossii, L. minutus, L. Buonapartii, L. glaucus, Lestris pomarina, L. Buffonii, Puffinus obscurus, Thalassidroma Wilsoni, T. Leachii.* Mr. John Burgess also exhibited a fine collection of Birds, being particularly rich in Warblers and Tits, among which were *Sylvia tithys, S. luscinoides, S. turdoides, Regulus ignicapillus,* &c. The Society exhibited an immature Golden Eagle and Great Shearwater, both presented by Thos.

Digitized by Google

Allen, Esq. A fine immature Spotted Eagle was exhibited by Mr. Riley. Mr. William Briggs exhibited a good series of Hawks, amongst which were fine specimens of the Goshawk and Marsh Harrier. The latter bird and an Ortolan Bunting (*Emberiza hortulana*) were exhibited by the Rev. J. Johnson. Among other noteworthy birds were *Strix bubo*, exhibited by John Dyson, *S. scops*, by Fred Moorhouse, *S. nyctæa*, *Alauda alpestris*, and *Nucifraga caryocatactes*, by John Burgess, and *Gallinula porzana*, by Joseph Sedgewick. Among Foreign Birds Mr. William Ward and Mr. John Dyson exhibited some good specimens, the former including a Flamingo and Crested Crane, and the latter some fine American Owls. Four cases of Nests of British Birds and a collection of British Birds Eggs, occupying twenty cases, exhibited by Mr. Geo. Liversedge, were well worthy of notice, as were also some cases of skeletons of Birds and Reptiles exhibited by Mr. W. H. Charlesworth.

A neatly arranged collection of British Shells was exhibited by Mr. John Varley, and some fine Exotic Specimens by Mr. S. Teal.

The collections of Insects were very numerous, and bore witness to the ardour and zeal of the workers in this department of Natural History. Mr. W. H. Charlesworth and Mr. B. Bradley exhibited cases of beautifully mounted British Coleoptera, and the collections of Macro-Lepidoptera exhibited by Mr. Jas. Varley, and Micro-Lepidoptera by the President, were very full and complete. Among the former were some of the remarkable varieties of *Abraxas grossulariata*, figured in "The Naturalist." (No. 9), and *A. caja*.

A series of Exotic Ferns exhibited by Mr, T. W. B. Ingle, and a collection of British Phanerogamia by Mr. J. Godward, formed the principal portion of the Botanical department of the Exhibition, if we except the living plants by which the room was profusely decorated; vases of choice flowers were also placed wherever a position was afforded them on the well filled tables.

The Geological specimens were not numerous, but some good Fossils were exhibited, including a collection from the White and Red Chalk of Speeton, exhibited by Mr. Ed. Tindall, and miscellaneous collections by Mr. John Nowell and Mr. John Armitage.

The Exhibition was open for eight days, and the number of visitors averaged nearly 1000 each day, an amount of success scarcely expected by the most energetic of its promoters; every evening a short practical address on some department of Natural History was delivered from the Platform, the Society endeavouring by this means, not

Digitized by Google

only to gratify the eye of the visitor, but to inform the mind, and to instil, where possible, a love for the study of Nature and her works.—G.T.

Doncaster Philosophical Society.—At the meeting of this Society held on Monday evening, Oct. 3rd, John Lister, Esq., V.P., in the chair, a paper was read by Mr. Appleby, F.L.S., "On the Transformation of British Ferns." The subject was divided into eight sections, four of which were treated of in this paper, viz.; Their appearance,—structure, —genera,—and economy, habits and locations. The other four—reproduction,—distribution,—physiology and transformation,—and their liability to new forms, were reserved for a future paper. The paper was received with much gratification by the members present, but as we may have an opportunity of printing it *in extenso* during the winter, we forbear making any further remarks on it at present.

On Monday evening, Oct. 17th, Mr. Samuel Appleby was to have given the concluding half of his paper on the "Transformation of Ferns," but having an attack of bronchitis he was prevented from attending. To meet the contingency the Rev. W. S. Smith, who was the next in order, kindly consented to change places with him, and read his paper on "The Nest-Building Propensities of Sticklebacks." The paper gave a description of the many peculiarities of this lively little inhabitant of the aquarium, its voracity of appetite, and pugnacious qualities making it a terror even to animals much larger than itself, yet evincing most tender care for its young, fighting with numbers of other sticklebacks who wish to make a savoury meal of the ova. The paper throughout shewed much close observation and did not fail to secure the attention of the audience—particularly when the mode of building and apparent use of the nest was described.

Observations.

The Dipper (*C. aquaticus*).—A fine specimen of the above bird was taken at Howley, near Batley, on Friday, the 14th October, by Mr. E. Day, of the latter place.—B.

Winter Quarters of the Toad.—Early in the spring of 1860, having occasion to remove some unhewn timber from beneath a hedge, we found several toads in a state of semi-hybernation. They were each of them embedded among leaves and pieces of dried grass. A small hollow had been made in the ground, lined with fine grass, upon which a quantity of leaves (beech leaves) had been collected, into which the toad seemed to have crept.—J. Ranson, Linton-upon-Ouse, York.—Communicated by the Rev. F. O. Morris.

Digitized by Google

Unio margartifera.—Referring to Mr. Dixon's remarks on this Shell being found in the Black River, Douglas, Isle of Man, at page 81 of "The Naturalist," allow me to say, that, we have them in large quantities at Braystones, on the Irt, a tributary of the Calder, where I have frequently seen them protruding their short siphons out of the mud on a hot sunny day. Tradition says that these shells were introduced here by one of the former owners, Sir John Hawkins, who had a patent for fishing them; and the same story is told by Montague in his history of British Shells.—L. M. Praiten, Whitehaven.

Field-Days near Scarborough.

No. I.

Oct. 1st, 1864.—Our first field-day was spent in the Forge Valley—a glen of the calcareous range—about five miles from Scarborough. My companions were an enthusiastic fern-grower, whose name so often appears in Moore's "Nature-printed Ferns," and a Micro-lepidopterist, who has been so successful in rearing those minute forms of insect life, that he has attained to continental celebrity!

We started early, and drove to the scene of our operations. Our first discovery was *Nepticula prunetorum*, busily mining the leaves of the sloe. The concentric zones in the brown blotch are sufficiently characteristic of this species. The sloe-leaves had also fed another Nepticula (*Plagicolella*), the large whitish blotches giving ample evidence thereof. *Lithocolletis Coryli* next put in an appearance, mining in the upper side of hazel leaves. We soon came upon a large batch of *Berberis aquifolium*, whose purple berries and shade of foliage are eagerly sought by the pheasants on Lord Londesborough's preserves. Our own British *Berberis*, with its clusters of scarlet fruit, grows apparently wild in the valley. *Hypericum hirsutum*, the commonest species of the calcareous glens and dales, gave us another miner, *Nepticula Septembrella*. Fine black-berried shrubs of the Buckthorn (*Rhamnus catharticus*) were next examined, and the broad galleries of *Nepticula catharticella* were evident in the leaves. *Actæa spicata* one of the Ranunculaceæ with deep black drupes, is very common in the Forge. A grass, not uncommon to this neighbourhood, (*Brachypodium sylvaticum*) was feeding within its fine leaves the larva of *Elachista Tæniatella*. Forge Valley is the home of the Wood Vetch which here assumes fine proportions: it was seeding profusely. The leaves of a rare orchid (*Epipactis ensifolia*) were pointed out by one of our party. The Brambling Finch, a native of

Digitized by Google

Norway and Sweden, was already uttering its deep finch like notes, and told us of its early arrival. On the wooded escarpment overhanging the Derwent the withered leaves of *Maianthemum bifolium* gave evidence of its place of growth. This is undoubtedly the rarest plant of the valley: I looked for the red berries, but was disappointed in my search. Intermixed with it grew *Trientalis europæa*; but no capsules were to be seen. On the moorlands above Hackness the French Willow-herb (*Epilobium angustifolium*) was shedding its feathery seeds in wild profusion. And now we came upon a somewhat local fern—*Lastræa recurva*—but as it is shy in its tendency to sport, abnormal forms were few, though the fern was very abundant. The miners again occupied our attention, and the slender tortuous mines of *Nepticula Myrtillella* were discovered in the leaves of the Bilberry, and of *Nepticula argentipedella* in birch leaves. *Ornix scoticella* had wrought its labyrinth on the mountain ash leaves, while *Lithocolletis Nicellii* was mining the under sides of the leaves of the hazel, and *Lithocolletis rifasciella* was busy in the honeysuckle leaves. *Lithocolletis caledoniella* was still at work in the leaves of the hawthorn, and though it was nearly dusk, a plentiful supply of mined leaves was gathered by our indefatigable companion. Thus ended our first field-day.—Peter Inchbald, Storthes Hall, Nov, 2.

Acherontia atropos.—Six years ago my friend Mr. Matthewman and I obtained upwards of 300 larvæ and pupæ of *A. atropos*, and I make no doubt this would have been another successful year but in June and August the frost (excepting in a few sheltered situations) completely destroyed the potatoe tubers, consequently the larvæ would die of hunger. This autumn the friend named above and I have had six larvæ brought from two or three places where the frost had not been so destructive.—R. Hebson, Barlby Bank, Selby, Nov. 1, 1864.

Notes on British Mosses. No. II.

By C. P. Hobkirk.

Schistostega osmundacea.—*Mohr.*

I first made the acquaintance, in the living state, of this truly beautiful moss, at Greensclough, Todmorden, where it grows plentifully. On a bright day last spring, in company with several other botanists, with Mr. John Nowell as guide, after a long and pleasant day's ramble, we turned our steps towards Greensclough. On reaching the spot we found a small low cave or day-hole, into which we passed from the bright sunlight outside, to what appeared before entering a dingy, dirty, clay-

Digitized by Google

hole. But once out of the glare of the sun, the soft, glittering emerald light spread over the sides and roof of the cave, was certainly, although we had heard of it before, more beautiful than any of us expected. The "golden-green light" described by Mr. Bowman in Mag. Nat. Hist. (vol. iii. page 462,) is an eminently characteristic term for the appearance of the young plants as we saw them, and any one, whether botanist or not, could not fail to be delighted with the sight, which is well worth the climbing and uphill work required to reach its locality. I have since seen a specimen of this moss said to have been gathered "in the neighbourhood of Mirfield," by one of the members of the Huddersfield Naturalists' Society.

S. osmundacea belongs to the acrocarpous mosses—division gymnostomi—being without peristome, and having the fruit terminal on a short peduncle. The whole plant, including fruit-stalk, is seldom more than one quarter to one half of an inch in height, and were it not for the brilliant appearance it presents in the dark, might easily be overlooked.

Bridel places it among his *Filicoidei*, along with *Fissidens*, both of which are remarkable for the disposition of their leaves, which are two-ranked in a vertical plane. The leaves are very delicate and tender, with large almost diamond-shaped (rhomboid) areolæ, only partly filled with small granules. The inflorescence is dioicous, both barren and fertile *flowers* being very similar, the latter having somewhat larger leaves.

The capsule, which is very small, is oval or subglobose in form, pale brown, when ripe: it is completely destitute of peristome, and has a very obscure annulus. The calyptra is very small, cleft on one side, (dimidiate,) and early falls away, leaving visible the conical lid, from the once supposed character of which the genus is named, (*Schistos*, cleft, and *stege*, a lid.) Hedwig, and some others, supposed the lid to be spontaneously fissile, into numerous radiating segments, but Mr. Wilson says, "The operculum is the very thickest and most sturdy that I have ever met with in any moss, filling up the mouth exactly like a bung, composed strictly of cells of a hexagonal form pervading the thickness of the lid, and not unfrequently disposed so as to stand in rows from the centre to the circumference, so that when any part of the lid is *obliquely* placed, with respect to the eye, the partitions of the cells in perspective represent dark lines resembling radii; this appearance is so constant when the lower or concave side of the lid is uppermost, in every part but that which may happen to be turned at right angles to

Digitized by Google

the line of sight, that it is no wonder Hedwig and others believed in a fissile lid." The columella is very thick, completely included within the capsule, and surrounded by a great number of minute spores, of an irregular, somewhat roundish or angular outline, and, so far as I have seen, they all appear to have a darker spot in the centre, which in some seems a depression, in others like a fold. This moss can scarcely be confounded with any other, even on a mere cursory examination, except one or two species of *Fissidens*, which, however, do not flourish in a similar habitat with *Schistostega*. The latter may be readily distinguished from *Fissidens* by its wanting a peristome. This is the only genus of the family *Schistostegæ*, and *osmundacea* is the only species, at least the only British species.

Synonyms :

Schistostega osmundacea, Web. and Mohr, Tasch. p. 92.—Nees and Hornsch. Bryol. Germ., t. 11. f. 1. —Bridel, Bryol. Univers.—Br. and Sch. Bryol. Europ. fasc. 17.

Gymnostomum osmundaceum, Smith. Flora. Brit., Eng. Bot. t. 2213.

S. pennata, Hook and Tayl., Musc. Brit. t. 8.

Gymnostomum pennatum, Hedw. St. Crypt. t. 29.

Mnium osmundaceum, Dickson.

Dicksonia pusilla, Ehr.

Bryum pennatum, With., Hull.

Schistostega osmundacea.—Recently whilst taking a walk on Overton Hills, near Frodsham, I discovered the above rare, but lovely little moss, called by some bryologists, *S. pennata ;* thus adding another botanical rarity to this neighbourhood. It is growing in a small sandhole, about eighteen inches long, and ten in diameter: how it has come there I cannot tell, as evidently the hole has not been made very long. At first I thought it was some sort of conferva, and it appears that I am not the only one that has thought so, for Berkely, and Stark, in their "Histories of British Mosses," have made the same remark. Its specific name, "*osmundacea*," is not inappropriate, being very like *Osmunda regalis* in miniature. When seen under the microscope it is a beautiful object.—J. F. R., Frodsham, October, 1864.

Notes and Queries.

In No. 11, page 174, of "The Naturalist" is a request for information of the locality of the Tree Sparrow in Lancashire. It occurs in the neighbourhood of Manchester, generally building in holes in decayed Willow, Poplar, and Oak Trees, near the banks of streams. I have known as many as four or five nests in one tree, and sometimes a nest of the Starling in the same. This season

Digitized by Google

I have noticed the following strange occurrence. A tree having been cut down in which some Tree Sparrows had been in the habit of building for the last twenty years, a pair have adapted themselves to circumstances and built a large oval nest in a hawthorn hedge, about twenty yards from the place where the tree stood; it contained three eggs. I found an old nest of the same description in the same hedge a few yards nearer to the tree. I waited the return of the birds lest I might confound it with the House Sparrow the nest of which it greatly resembled; after about an hour's waiting my patience was rewarded by seeing the birds, and one of them entered the nest so that I was satisfied I had made no mistake.—JOSEPH CHAPPELL, 18, Sheffield-St., Manchester.

Acorns, &c.—Has any reader of "The Naturalist" noticed the almost total absence of acorns in particular localities, this season? I understand that in Devonshire this fruit has been unusually abundant, whereas in the West and North of Cumberland, it is almost a total failure. Being in want of a few I searched trees on which in previous years I had noticed abundance, in the West of this county, and out of perhaps hundreds of trees, I only found two fruited, and they very thinly. The same may be said of the oaks of Gilsland, Lanercost, and Naworth. I may state that amongst the plants I have gathered this season I found large quantities of *Allium Scorodoprasum*, along the sides of the river between Egremont and Lowmill. Along the sandy margin of the river Irthing, nearly opposite the sulphur well at Gilsland, I found *Carduus heterophyllus* (quite new to me in this neighbourhood) along with *Galium boreale*.—LYDIA M. PRATTEN, Egremont, Whitehaven, Oct. 24, 1864.

Preserving Micro-Lepidoptera.—Will any of your readers kindly inform me of the best mode of setting and preserving the minute moths; such as *Argyroniges* and *Microsetia?*—J. E. MASON.

Exchange.

I have a quantity of the following Insects, in fine condition, which I shall be glad to exchange;—*G. flavago, N. Dahlii, E. fulvago, A. Aprilina*, and *A. pyramidea*. Also a great number of Land and Fresh Water Shells.—GEORGE LUMB, Kirkgate, Wakefield, Nov. 4th, 1864.

I have good specimens of *Eupithecia debiliata* and *Phibalapteryx lignata* which I shall be glad to exchange with Entomologists who are in want of them; amongst my most immediate wants are *bred* specimens of *Tæniocampa populeti*.—C. CAMPBELL, 325, Rochdale-Road, Manchester, Nov. 5th, 1864.

Digitized by Google

Original Articles.

DREDGING ON THE DOGGER BANK.

By George H. Parke.

To many it may seem superfluous to chronicle the results of dredging operations on this ground, so well known as the scene of the labours of our Natural-history friends, Messrs. W. Bean and J. Leckenby, F.G.S., of Scarborough, whose researches on the North-East coast of Yorkshire have extended over many years, resulting, as is well known, in many interesting additions to our knowledge of the British Invertebrate Animals, and in the addition of many new species to our Fauna. But when we consider that the comparatively small space of the sea-bed traversed by the dredge, can furnish but a very imperfect record of its nature, and of the varied forms of animal life which inhabit it, the very fact of these deficiencies must lead us to the conclusion that dredging even on a comparatively well-worked ground, cannot be too often practised. Every expedition, nay every haul of the dredge, may bring to light facts which will tend in some way or other to benefit the world of science, bearing in mind "that no scientific truth can possibly be too trifling or unimportant to be worthy of preservation."

Having waited some weeks for a favourable state of the weather, which had, for an unusually lengthened period, been anything but suitable for dredging—and especially so for this part of the coast, which is notorious for its stormy character,—N. E. winds, with a sea sufficiently rough to make it unpleasant if not altogether impracticable, we chartered the "Vigilant," a neat little craft, but of slow coach celebrity, and sailed from Scarborough with a S.W. wind, which promised fair to waft us in good time to the desired ground, which we reached during the night. When some twenty to twenty-five miles N.N.E. off Whitby (?) we sounded thirty-six fathoms, with a sandy bottom. We threw over the dredges, using in place of the usual net, a sugar-bag, which on a loose sandy ground answers admirably; our first haul produced nothing but fine sand, with a few specimens of *Dentalium entalis*. Several more hauls were made resulting in *Natica Marochiensis*, Gmelin, (dead), several odd valves of *Cyprina Islandica*, and a few specimens of *Echinus sphæra*, the latter were very small, not being more than eight inches in circumference.

Digitized by Google

Night setting in, the dredge was abandoned for the cabin, which speedily brought on all the horrors of sea sickness, which continued with slight intermissions until the third day. Early the next morning we set to work in earnest, having in the night-time arrived at the destined locality —the Silver Pits on the west slopes of the Dogger Bank. Here *Dentalium entalis* occurred in every haul, with now and then a specimen of *Astarte compressa* and *A. sulcata*, *Echinus sphæra* came up in abundance with an occasional sprinkling of *E. miliaris*. Later on the dredge brought up bright coloured specimens of *Trochus zizyphinus*, and the very next haul yielded *T. zizyphinus* var. *Lyonsii*; this shell when fresh from the dredge is a beautiful object—

> "Composed with nature's finest care,
> And in her fondest love."

of a brilliant pearly white, and in some specimens the animal was tinged with bright crimson, which, shewing through the semi-transparent shell, added greatly to its beauty. The colour, however, fades when the animal is plunged into fresh water.

Young specimens of *Mytilus modiolus* occurred with *Fusus gracilis*; a large water-worn stone, weighing some thirty pounds, was brought up, covered with *Alcyonium digitatum*, attached to which was a specimen of *Mytilus modiolus*. It may be remarked here, that living examples of *Buccinum undatum* were of rare occurrence, though dead half-grown individuals were not uncommon, many of them giving shelter to *Pagurus Bernhardus*, Linné, while the external portion of the shell supplied room for the habitation of *Serpula vermicularis*. One of the most successful hauls brought up living specimens of *Echinus melo* (*E. Sardians*, Leske?) an Echinoderm which has not hitherto been recorded as British (Mr. Peach has taken it at Fowey, in Cornwall, but the occasion was not made public). It is a Mediterranean species. The late Professor Forbes in his beautiful work on the British Starfishes, remarks that "It is probable that the *Echinus melo* of continental authors is identical with *E. sphæra*" Müller, it differs, however, in many points from the *E. sphæra* of Müller, and I think it may be fairly entitled to rank as a good species; but on this point I hope to say more hereafter. This, with *Natica helicoides*, *N. sordida* (dead), *N. pallida* (Brod. and Sowb.) and *Modiolaria nigra*, all dredged from a depth of fifty fathoms, proved to be our best things. Dead examples of *Nassa incrassata*, a shallow water species, *Natica monilifera*, *N. Marochiensis*, *Fusus gracilis*—the three latter encrusted

Digitized by Google

with *Hydractinia echinata*, Linné,—and odd valves of *Cyprina Islandica* occurred abundantly, though with the exception of *Dentalium entalis*, which seemed to be generally distributed on all sides, living forms were seldom met with at the same time. This seems strange, and would suggest the idea of a "struggle for existence." Mr. Jeffreys in his dredging report read before the British Association (1863) says, "Considering the vast extent of sea-bottom which has never been touched by the dredge, the exceedingly limited space measured in square acres which can be explored by means of it, and the infinite variety of ground comprised within any given area, I would suggest that great caution should be used, and further inquiries made before the common expression is hazarded that certain species are now "dying out," whether slowly, gradually, or rapidly. I do not believe that such is the case. The fact of finding only dead shells in a particular spot is no proof that living ones connot be met with in the same district. There may be, and often is, an accumulation of dead shells in one place, like bones in a grave-yard, in consequence of the shell-fish having deserted it for some reason with which we are not acquainted, while the living brood migrates or shifts its quarters. The proportion of dead to living specimens, even of common species which are not supposed to be "dying out," is often remarkable. Among many hundred single valves of *Lima subauriculata*, which were this year dredged in Shetland, there was only one live specimen." I may mention a similar occurrence in my dredgings on the Manx Coast; in 1862, fine living examples of *Lima Loscombii* were brought up, in fifteen fathoms water, off Douglas Head, and in the same locality *Pectunculus glycymeris* occurred in great numbers. In July, 1863, I dredged both species in abundance, but, with the exception of three small ones of the latter, all the specimens were dead, and in most cases detached mutilated valves.

Ten or twelve specimens of *Solen pellucidus*, Pennant, were brought up in 45 fathoms water, but more or less injured by coming in contact with the *débris*; also a young living example of *Buccinopsis Dalei*, J. Sowerby.

The following list will show the specimens taken :—

MOLLUSCA.

Name.	No. of Sp.	Observations.
Saxicava arctica, *Linné.*	one.	Living.
Corbula gibba, *Olivi.*	few.	40 fathoms, living.
Solen pellucidus, *Pennant.*	few.	45 „ „
Lucina borealis, *L.*	few.	Living.

Digitized by Google

Name.	No. of Sp.	Observations.
Psammobia tellinella, *Lam.*	one.	Living.
Scrobicularia prismatica, *Mont.*	few.	Living.
Mactra solida, var. elliptica, *L.*	several.	45 fathoms, living.
Venus ovata, *Pennant.*	few.	
,, gallina, *L.*	common.	Adults rare.
,, lincta, *Pulteney.*	few.	Dead.
Astarte sulcata, *Da Costa.*	few.	Living and very fine.
,, compressa, *Montagu.*	rare.	45 fathoms.
,, triangularis, *do.*	one.	In fine sand.
Mytilus modiolus, *L.*	common.	Young specimens.
Modiolaria nigra, *Gray.*	two.	45 fathoms, living.
,, marmorata, *Forbes.*	few.	Living, small.
Leda minuta, *Müller.*		Living, very fine.
Arca lactea, *L.*		Single valves.
Pecten opercularis, *L.*		Young.
,, similis, *Laskey.*		Single valves.
,, varius, *L.*		
Dentalium entalis, *L.*	many.	
Trochus zizyphinus, *L.*	many.	With Alcyonium digitatum.
,, var. Lyonsii, *Leach.*	many.	,, ,,
Aporrhais pes-pelicani, ,,	one.	Dead.
Scalaria communis, *Lam.*	several.	,,
,, ,, white var.	several.	40 fathoms, dead.
,, Trevelyana, *Leach.*	several.	50 ,, Mr. Leckenby obtained it living on the same ground in 1863.
Natica monilifera, *Lam.*	common.	Dead.
,, Marochiensis, *Gmelin.*	common.	Dead, tenanted by Hermit Crabs.
,, sordida, *Swainson.*	rare.	Dead.
,, Montagui, *Forbes.*	rare.	Living.
,, helicoides, *Johnston.*	one.	Dead, fine.
,, pallida, *Brod & Sow.*	few.	Fine adult examples; living.
Nassa incrassata, *Strom.*	abundant.	Dead.
Buccinum undatum, *L.*	rare.	Those taken were chiefly dead half-grown examples.
Fusus gracilis, *Da Costa.*	m. c.	
,, propinquus, *Alder.*	common.	48 fathoms, very fine examples.

Digitized by Google

Name.	No. of Sp.	Observations.
Buccinopsis Dalei, *J. Sowerby.*	one.	A young spn. in 45 fathoms, alive.
Trophon Bamffius, *Donovan.*	rare.	Dead.
Mangelia turricula, *Mont.*	rare.	Larger than any hitherto recorded.
Bulla Cranchii, *Leach.*	rare.	Dead.
Philine aperta, *L.*	one.	50 fathoms, living.
	POLYZOA.	
Flustra Murrayana, *Bean.*		
Cellepora pumicosa, *L.*		
	ANNELIDA.	
Serpula complexa, *L.*		
,, vermicularis, *L.*		
	ECHINODERMATA.	
Ophiocoma rosula, *Link.*		
Ophiuria texturata, *Lam.*		
,, albida, *Forbes.*		
Asterias aurantiaca, *L.*		
Spatangus purpureus, *Müll.*	common.	
Echinus sphæra, *Müll.*	common.	
,, melo, *Lam.*	three.	
,, miliaris, *Leske.*		
Amphidotus roseus, *Forbes.*		
	ZOOPHYTES—HYDROZOA.	
Hydractinia echinata, *L.*	common.	On Natica nitida, N. monilifera, Fusus propinquus and Islandicus.
Tubularia indivisa, *L.*	common.	
,, larynx *Ellis.*		
Sertularia polyzonias, *L.*		
Antennularia antennina, *L.*		
,, ramosa. *L.*		
	ACTINOZOA.	
Alcyonium digitatum, *L.*	common.	

To Mr. Bean, of Scarborough, I am much indebted for carefully examining and arranging the result of our labours, and also to Mr. Gwyn Jeffreys, who was then on a visit to Mr. Leckenby, at Scarborough, for revising the list of the Mollusca. Dr. Wright also kindly identified the *Echinus melo*.

Digitized by Google

SPONTANEOUS EXOTICS.

By James Britten.

[*Continued from page* 207.]

Order IV.—Cruciferæ.

Sisymbrium austriacum, Jacq. "Several luxuriant specimens were collected in 1852 among the sand-hills on the north-east of Hartlepool, in the neighbourhood of a large quantity of clayey soil, brought thither by a temporary line of railway from the new docks; so that most likely the seeds have been originally introduced with foreign ballast, and lain dormant until their removal has offered a favourable opportunity for germination." J. G. Baker in *Phyt. vi.*, 720-1. *O.S.* It is recorded doubtfully from the Wandsworth waste ground in *H.B.P.* 701; and in *Phyt. iii.*, 338. *N.S.*, is said to have been exceedingly common there, and self-propagated, growing "not only on the fresh soil, but on the hard-trodden ground." I collected what I believe to be this plant from the waste ground at Kew Bridge, in 1863. A native of Austria.

S. Columnæ, Jacq. Has "grown at Wandsworth steamboat pier plentifully, during the preceding five or six years." *H.B.P.* 701. It is not now to be found there. A native of the Levant.

S. pannonicum, Jacq. This plant appears to be well established at Crosby, near Liverpool, where it was observed by Mr. Fisher, "in May, 1858, growing for about a hundred yards along the railway side; it was in great abundance, and I found had existed there some time, for the Rev. W. M. Hind had specimens found some years since at the same place." Here Mr. Fisher thinks "it may perhaps have been introduced among seeds sown in the station-master's garden." See *Phyt. iii.*, 112. *N.S.* This locality is perhaps identical with that of the "Crosby sand-hills," where the plant is stated, in the *Thirsk Report* for 1862, to have been "plentiful for the last seven or eight years." (*pp.* 9, 10.) It also occurred plentifully for a similar period at the Wandsworth steamboat pier locality (see *Phyt.* as above); but it has now disappeared thence, in common with most of the introduced species. It is a native of Hungary.

Note.—*S. polyceratium*, L., admitted into the *London Catalogue* on account of its naturalisation at Bury, in Suffolk, would appear to have no stronger claims to that honour than the last-mentioned species.

Malcolmia africana, Br. Was collected by Mr. Irvine in the Wandsworth steamboat pier locality, where it was "exceedingly common, appear-

Digitized by Google

ing every year in greater force." *Phyt. iii.*, 338. *N.S.* It has now disappeared thence. A native of Africa.

M. maritima, Br. "Between Dover and St. Margaret's Bay, apparently wild, there being no garden either above or below the cliff for some distance. Miss Harvey." Cowell's *Floral Guide to East Kent*, published 1839, p. 73. In *Mag. Nat. Hist. vii.*, 271, this locality is described as being "under the cliff about half way between St. Margaret's and Dover, in various places for a quarter of a mile, where the banks are grassy." In this neighbourhood it appears to be at least naturalised; for Mr. W. G. Smith informs me that on June 13th, 1864, he observed it growing luxuriantly here and there between Folkestone and Dover for some little distance. It "occurred once or twice near Battersea," (*H.B.P.* 693), probably only as a straggler from cultivation; and at the Wandsworth waste ground, where it was "very scarce." *Phyt. iii.*, 338. *N.S.*

M. littorea, Br. "Appeared for a season or two about Wandsworth steamboat pier in profusion." *H.B.P.* 693. This, like the last, is a native of the South of Europe.

Arabis alpina, L. This common ornament of our gardens in early spring has established itself very plentifully near the Royal Gardens at Kew, close to the gate by the riverside; here it extends over several yards. I am informed that it has also occurred for twelve years on a wall at Highgate, Middlesex. It appears from the *New Botanist's Guide*, p. 517, to have been included in a list of plants given in Barry's *History of Orkney*, but was without doubt erroneously so recorded. A native of Switzerland and the Pyrenees.

A. arenosa, Scop. Is recorded by Mr. Irvine, in *H.B.P.* 798, from the Wandsworth steamboat pier locality; also doubtfully in *Phyt. iii.*, 338. *N.S.*, where it is said to have been "very common in the Wandsworth station every season." A native of Europe.

Diplotaxis erucoides, D.C. "Very plentiful near the steamboat pier, Wandsworth." *H.B.P.* 706. I observed a large plant of it in this locality in 1862. See *Phyt. vi.*, 412. *N.S.* A native of the South of Europe.

D. viminea, Reich. "Waste places at St. Peter's Port, Guernsey, (Rev. W. W. Newbould)." *E. Bot. ed.* 3., *i.* 142. It may have been merely an introduction to this locality.

Moricandia arvensis, D.C.? Recorded doubtfully from Wandsworth steamboat pier, by Mr. Irvine (*Phyt. iii.* 334. *N.S.*) A native of the South of Europe.

Digitized by Google

Erucastrum obtusangulum, Reich. "At Wandsworth steamboat pier." (*H.B.P.* 798.) A native of the South of Europe.

Sinapis Schkuhriana, Reich. "In 1861 I found a *Sinapis* growing on the oldest part of the West Hartlepool ballast-hill, which I was unable to determine. Mr. J. G. Baker, to whom I referred it, believes it to be the above-named species. From its habitat, it has probably been established at Hartlepool for some years." Rev. A. M. Norman, in *Transactions of Tyneside Naturalists' Field Club, v.* 137.

S. hispida, Schusb. "At Wandsworth steamboat pier." *H.B.P.* 798.

S. dissecta, Lag. "Abundant in 1855 on mud spread out on Battersea Fields (Park), but where it has since disappeared." *H.B.P.* 704 "Plentiful this year [1856] both in Battersea Fields and at Wandsworth steamboat pier." *Phyt. i.*, 405. *N.S.* A native of the South of Europe.

Since the above was written, I have received additional information relating to some of the plants previously mentioned, and as, with one exception. this refers only to the order *Cruciferæ*, I have thought it better to give it without further delay.

P. 202. *Dielytra formosa*, D.C. Mr. W. Richardson, junr., has recently informed me that it "grows in profusion in Hulne Parks [Northumberland], and more sparingly at Ratcheugh Crag, in both places near a garden."

P. 203. *Lunaria rediviva*, D.C. "A few examples" of this, or of *L. biennis*, "grew in September, 1864, in a narrow lane leading from St. Leonard's church [Bridgenorth, Shropshire], to the river, by a path which crosses the railway." *Botanists' Chronicle*, p. 103.

P. 206. *Barbarea intermedia*, Bor. Mr. J. Hardy, of Hulme, Manchester, has kindly given me much additional information regarding this species, which I have his permission to publish. He writes as follows:— "The localities you give on the authority of Mr. Buxton and myself, read as if different, but the fact is, they are one and the same; the plant being very common in cultivated fields throughout the entire Manchester district, and more especially so on the south and south-west, wherever land is badly farmed, or, as favouring its biennial character, in clover-fields. Bowden, although seven miles from the *centre* of Manchester, is really very nearly joined to it, and may be considered as in the same district. Now, with respect to the recent introduction of the plant, I have found specimens in every old collection of Manchester plants I have had an opportunity of

Digitized by Google

examining, and, in one instance, in a collection made upwards of seventy years ago; and, in conversation with some of the older botanists of the district, I have invariably found that they knew the plant growing as it does now, from their earliest recollections. Mr. Buxton's *Flora of Manchester* was published in 1849, and there the plant appears for the first time as *B. vulgaris* var. *intermedia*. My acquaintance with it commenced about this season sixteen years ago, from seeing the root-leaves offered for sale in the market as a winter cress. Some year or two later, Mr. Baker had a note upon it in the old *Phytologist*, about which I communicated with him, and the result was the identification of the plant by M. Boreau himself with his *B. intermedia*. It is, I am of opinion, quite as little of an introduced species as *B. vulgaris*, and certainly less so than *B. præcox*; the true solution of the problem is, I believe, that it had for a long time been confounded with the other species."

P. 206. *Erysimum orientale*, L. Mr. J. C. Melville informs me that he has found it "at Woolmer, near Selborne, Hants, in tolerable plenty."

P. 206. *E. Perofskianum*, Fisch. Mr. W. G. Smith writes—"I found several specimens in the brick-fields at Stoke Newington and Highbury [Middlesex]; I saw it also somewhere else close by, apparently wild, but of course an escape from cultivation."

Order V.—Resedaceæ.

Reseda Phyteuma, L. Occurs on the Middlesborough ballast-hills, "near the mouth of the Tees on the Yorkshire side of the river." (*North Yorkshire*, p. 308.) A native of the South of Europe.

R. gracilis, L. Mr. Irvine records this from the Wandsworth steamboat pier locality. "A native of Naples, Dalmatia, and Austria." *Phyt. iii.*, 334. *N.S.*

R. odorata, L. This universally esteemed annual is, as might be supposed, a frequent production of our London rubbish-heaps. I have met with it this year in the grounds of Chelsea College and at Parson's Green, in Middlesex; and in Surrey, on the embankment by the Thames at Battersea Park, where it was plentiful in two or three places; it also occurred in 1863 on Putney Heath. Mr. Winch records it from the ballast-hills of the Tyne and Wear, and "two or three plants" have recently occurred in this neighbourhood, "on about three year old ballast, West Hartlepool." M. A. Lawson, in *Transactions of Tyneside Naturalists' Field Club, v.*, 307. A native of Egypt.

Digitized by Google

Order VI.—Cistaceæ.

Helianthemum ledifolium, Willd. "Hudson records this from sandy pastures and meadows, near Brean [Brent] Down, Somersetshire; but possibly some error had occurred between this and *H. polifolium*. The Rev. J. Collins has sought the alleged locality year after year unsuccessfully." *Cyb. i.*, 172.

Order X.—Frankeniaceæ.

Frankenia pulverulenta, L. "On the coast [of Sussex] between Brighton and Bognor. Hudson. I never heard that this plant has been found there by any subsequent botanist, but Dr. Withering sent me, shortly before his death, a specimen which I presume was indigenous, and gathered here." Dawson Turner, in *B. G. ii.*, 606. Mr. Borrer could not find it here.

(To be continued.)

Review.

"*The Abbeville Jaw, an Episode in a Great Controversy*," by the Rev. J. L. Rome, F.G.S. (London, Longman and Co., 1864.)

The above is the subject of a paper read before the Hull Literary and Philosophical Society in March last, and is divided into two parts or chapters, the first of which is devoted to the Abbeville Jaw, the second to a critique upon Sir Charles Lyell's "Antiquity of man." Whilst referring with some severity to the proceedings and opinions of the Anthropological Societies of London and Paris, the author in the first chapter gives a very plain and substantial account of the finding of, and subsequent discussions upon, the now celebrated human jaw. We quite concur with the author's opinions respecting this jaw, and believe with him, (with all deference to so great an authority as M. Boucher de Perthes), that in this instance, a most stupid and senseless hoax has been attempted to be played off upon geologists, with what results the scientific world is now well acquainted. At the same time we scarcely agree with all Mr. Rome's strictures upon Dr. Falconer and Mr. Prestwich, and the changes of opinion respecting the authenticity of the jaw. These gentlemen, along with the other members representing British science at the Paris conference, whilst investigating the remains in the council-room, were thoroughly convinced of the non-

Digitized by Google

authenticity of the jaw; it was only on the adjournment to the gravel-pits at Abbeville, and after watching the labourers from seven a.m. to five p.m. dig into the rocks, and disentomb a number of flints in similar condition to those examined at Paris, that this conclusion was shaken, and if some of them did somewhat hurriedly rush into print, it was without that mature deliberation, which afterwards caused them to return to their first expressed opinion. Probably, if, as Mr. Rome suggests, our *savans* had used the pick-axe with their own hands the case would have been very different. However, the British members of the commission are now all agreed that no reliance whatever is to be placed upon the Abbeville jaw.

With the second part of this paper—the examination as to the age of the Somme valley and others of the quaternary deposits—we cannot altogether agree. This perhaps may not be of much importance, as scientific opinion is yet divided on this point. We are glad to find that our author cannot accept M. Elie de Beaumont's theory for the origin of the upper and lower gravels of the Somme, and we think the reasons he advances sufficient for not doing so. He fully accepts Sir C. Lyell's hypothesis of their formation, but yet cannot allow them to be nearly so ancient as Sir Charles would make them. In fact, though, positively stating that he has not any "theological reasons for discarding the new-born physical chronology as competing with the sacred one," the last few pages are clearly an attempt to bring this *new-born chronology* into something like harmony with the *sacred one*. And after he has satisfied his own mind with his reconciliation theory, as the question now stands, he states that should geology in future years assert man's place in creation as pre-glacial instead of only post-glacial, he would reconcile the two chronologies by supposing the existence prior to the "Historic Adam" of a totally different race of men, who had gradually disappeared before the superior advantages of the Adamic race. This we submit is a far more glaring "assumption" than any of those he so unsparingly heaps on Sir Charles Lyell's shoulders.

Reports of Societies.

Belfast Field Naturalists' Club.—The sixth excursion of this Society, and the concluding one of the summer session, was made on the 8th of October, the locality chosen being the limestone quarries of the Cave Hill. The excursion was purely geological in its object, differing in this respect from the preceding ones of the session, in which botanical research principally occupied the

Digitized by Google

members. The strata as seen at this place are of great interest to the geologist. Here rocks of the secondary epoch are exposed, abounding in remains of organisms which flourished in a period long past, and whose only record is to be read in the stone. Beneath the capping of basalt which crowns the hill are the limestone and sandstone of the Cretaceous system, and underlying these the shales and banded limestones of the Liassic period. The section of the latter which was examined consisted of shales indurated by the close proximity of a trap dyke. The fossils were abundant, but much injured by the heat of the intruded igneous rock. Good specimens of several species were, however, obtained; of these may be mentioned *Modiola Hillana*, *Axinus cloacinus*, *Cardinia ovalis*, and *Pecten Valoniensis*. The shales in which the above-named fossils were found are portions of that zone of lias determined by R. Tate, Esq., F.G.S., late secretary to the club, to be the white lias of English geologists. Some work was also done with the cretaceous rocks. A bed of soft friable green sandstone yielded a large number of fossils, some of them in very good condition. The following species may be noted—*Pecten orbicularis* and *P. Quadricostatus*, *Exogyra lævigata*, and a *Trigonia* species not known. This bed included a layer of coprolites, with numerous fish teeth, some of which were obtained in a perfect state. *Ostrea carinata*, and a fine echinoderm, *Micraster acutus*, were found in a higher stratum of sandstone. In addition, a few of the chalk fossils were secured, as *Ananchytus ovatus*, and *Pleuratomaria perspectiva*. A perfect specimen of *Ammonites intermedius*, in beautiful preservation, was found in the lower lias of Carr's Glen, contiguous to the quarries. The summer session having now terminated, it devolves on the committee to make arrangements for the vigorous prosecution of the work for the winter session, which consists of papers on scientific subjects read fortnightly by the members, which papers are followed by discussion relating to the subject. The council of the Natural History and Philosophical Society have again kindly granted to the club the use of one of their lecture-rooms in the Museum for the evening meetings. —J. Hartley, The Castle, Belfast.

Observations.

Singular Capture of a Seal.—About three months ago a man engaged in the ling fishing caught a seal (*Phoca vitulina*) upwards of three feet in length, upon a common hook baited with a piece of fish. The depth of water was twenty-two fathoms, but as the lines wer ebeing hauled in at

Digitized by Google

the time of the capture, it is probable that the bait was taken when near the surface.—HENRY L. SAXBY, Baltasound, Shetland, Nov. 2, 1864.

Food of Ling and Cod.—Several instances in which sea-birds have been swallowed by fish have, at various times, come to my knowledge. The latest occurred during the past summer, when an entire guillemot was taken from the stomach of a ling (*Lota molva*). In examining the stomachs of some cod very lately I was surprised to find that the shells of crabs with which they were partly filled, were as red as if they had been boiled, and in this respect there was but little difference between the broken remains and individuals which had been but recently swallowed. Most of the stomachs contained in addition white shells of pectens, and all contained herrings.—HENRY L. SAXBY, Baltasound, Shetland, Nov. 2, 1864.

Variety of the Golden Plover.—While following a flock of Golden Plovers yesterday, I saw one in which the wings were perfectly white, but unfortunately my endeavours to obtain the specimen were unsuccessful.—HENRY L. SAXBY, Baltasound, Shetland, Nov. 2, 1864.

The Cuckoo.—During a seven years' residence at High Harrogate, (a locality in much favour with cuckoos); I paid great attention to this bird. I have found as many as thirty young ones in a season, chiefly in the tit-larks' nests; and I have made several attempts to rear them, but never could get them through the winter. A friend of mine, who had great experience in the rearing of birds for the aviary, also made several attempts, but without success, and on comparing notes with others who had done the same, I never found that they had succeeded, or knew any one that had. Seeing that with every attention, efforts to get them through the winter have failed, I am disposed to doubt the statement sometimes made, that they occasionally remain with us through the winter.—J. RANSON, Linton-upon-Ouse, York.—Communicated by Rev. F. O. MORRIS.

Curious Nesting Place of a Chaffinch.—I am informed by some friends that a few years ago a Chaffinch placed its nest in the heel of an old shoe, which was lying on the ground, but before it began its nest it carefully covered the shoe with moss.—G. Ormerod, Redenhall Rectory.—Communicated by the Rev. F. O. MORRIS.

FIELD-DAYS NEAR SCARBOROUGH. No. II.

Oct. 4th, 1864.—Our second field-day was in the valley of Haybourne Wyke, about six miles north of Scarborough. We entered the glen

Digitized by Google

at the sea-side, following the stream up the valley, in the direction of Stainton Dale. The stream passes through the Lower Oolite, and is thus strongly impregnated with limestone, as the vegetation on its banks abundantly shows. At the very entrance of the glen, not a stone's throw from the sea, were noble plants of *Inula Helenium*, with the seed-heads fully perfected. The flounced case of *Coleophora discordella* was conspicuous on the under side of the leaves of *Lotus major*, on which the larva was feeding. Another case-bearer (*C. gryphipennella*) was feeding on the leaves of the rose; its cylindrical greyish-ochreous case readily distinguishing it. Tall plants of *Angelica sylvestris* were next examined, and in the seed-heads the larvæ of *Eupithecia tripunctata* and *Œcophora flavimaculella* were detected, the former being nearly full-fed. *Carex pendula*, with its fine green leaves, hung over the stream in every direction. In the seed-heads of *Dactylis glomerata*, one of our commonest grasses, *Glyphipteryx Fischeriella* was feeding, having made himself a coat of the chaff-scales. This was first discovered by the companion of our rambles. A little higher up the stream, a ledge of rock revealed to us a pair of water-ousels, which hurried quickly past, uttering their notes of alarm. Another pug (*Eupithecia centaureata*) was feeding on the seeds of the Ragwort. *Pterophorus osteodactylus*, one of the Plumes, was consuming the seeds of the Golden rod, which was very abundant in the valley. Above us the martins were still uttering their gladsome notes, while hawking for their food. The pretty light-green larva of the Silver Lines (*Cloephora quercana*) was creeping down the bole of an oak, evidently badly ichneumoned. *Lithocolletis spinolella* was mining in the underside of the leaves of the sallow. *Myrrhis odorata*, with its strongly aromatic leaves, was growing by the stream-side, and its long, deeply furrowed capsules were very conspicuous. We next noticed the pretty slender galleries, in rose-leaves, of *Nepticula anomalella*. On one rose-tree, that grew somewhat in the shade, hardly a leaflet was without its mine! Noble fronds of *Lastræa Filix-mas*, var. *paleacea*—full five feet in length—were pointed out to us by our fern-friend; the rachis being closely invested with a dense coating of chaffy scales. *Hypericum quadrangulum* offered us *Nepticula Septembrella*, as *H. hirsutum* had done on our previous field-day. The old cones of the larva of *Gracilaria Swederella* were conspicuous on the oak-leaves. We met also with *Tinagma resplendellum* in the leaves of the alder, which it first mines, and afterwards cuts out for itself therefrom an oval flat case. We were now approach-

Digitized by Google

ing the Falcon Inn, on the direct road between Scarborough and Whitby, and were surprised to find in the garden of the inn a few British plants, of which we should have been glad to have read more fully the history. They were *Mentha rotundifolia*, *Spiræa salicifolia*, and *Malva moschata* with white flowers. The former I take to be the species so subject to variegation, and such a favourite in these days of foliage plants. I also noticed another mint in the garden strongly marked with yellow veins. *Spiræa salicifolia* is stated, in the Scarborough Guide, to grow wild near Cayton. I saw it some years ago wildly abundant near Bala, in North Wales.—PETER INCHBALD, Storthes Hall, Nov. 14.

Notes and Queries.

Smerinthus ocellatus.—I had a very fine female specimen of the Eyed Hawk Moth, emerged from the pupa the second week in June last, and kept it three weeks and two days in my breeding cage, expecting others out nearly at the same time, but none have, as yet, made their appearance. Can any Entomological student inform me through the pages of "The Naturalist" if they have ever known them go over to the second year.—J. BLACKBURN, 42, St. Mary's-Street, Leeds, Nov. 3rd, 1864.

Schistostega osmundacea, W. & M.—Your correspondent J. F. R. writing in your last issue, 15th November, announces the finding of the above species as new to Frodsham; I believe that Mr. W. Wilson has been aware for some years of its presence in that neighbourhood, and in the course of an afternoon's Bryologizing in March, 1863, I met with it in three or four distinct places in the vicinity of Frodsham. In one of the localities, a sandstone cave, it was in the greatest abundance, many square yards being covered with it. If J. F. R. will refer to the "List of Mosses occurring in the neighbourhood of Manchester," as given in the "Report of the Manchester Field Naturalists' Society for the year 1863," he will find it there stated that *Sch. osmundacea*, W. & M., is "common at Frodsham."—J. E. W.

Exchange.

Mr. R. Bathwick, Alloa, Scotland, has *P. Artaxerxes* and *C. Davus* to exchange; he has also a small collection of Lepidoptera to exchange for a collection of Birds' Eggs. A list will be sent on application.

Mosses.—Having a number of duplicates of British Mosses on hand, I shall be glad to exchange lists of desiderata, &c., with any Bryologist, either British or Continental.—CHAS. P. HOBKIRK, Huddersfield, Nov. 24th, 1864.

Digitized by Google

Original Articles.

NOTES ON THE ORNITHOLOGY OF NORFOLK.—RARITIES.

By T. E. Gunn, Norwich.

Falco haliætus.—The Osprey has occurred in two instances in Norfolk during the present season. The first instance I find recorded in the Norwich Mercury of the 1st Nov., from which paper I quote the following:—"A few days since George Martin, gamekeeper to J. L. Beddingfield, Esq., of Ditchingham Hall, shot a remarkably fine specimen of the Osprey or fishing Hawk, near the canal in the park, it measured six feet two inches between the points of its wings, and was preserved by Mr. Wm. Banham, of Bungay." This I should say is an unusually large specimen. On the 26th instant I saw a fresh killed male specimen, which was shot the day previous in the neighbourhood of Stalham; this specimen measured two feet in length, and five feet eight inches across its extended wings to the point of each; longest quill feather in the wing fifteen inches; tail, ten inches; irides, yellow; cere, dark bluish; legs and toes, pale bluish green; claws, black and very curving, forming nearly a half-circle. It apparently had subsisted well during its stay in that locality, as it was very fat, just previously to its capture it had been regaling itself with a perch *(Perca fluviatilis)*, as its stomach on being opened was found quite filled with the remains of one.

Falco apivorus.—A splendid immature male of *Falco apivorus* was shot at a small village named Gatesend, about six miles distant from Takenham on the 26th of last September, another individual (probably a female) has been seen several times since in the same locality. The captured specimen measured twenty-two inches from the tip of its beak to the end of its tail, and four feet across its extended wings to the extreme points; the whole surface of its plumage is of a uniform brown, feathers on crown of head and back of neck, small and pointed, each terminating with a small spot of dull white; the space round the eyes, and the the throat, white; irides, brown; cere, yellow; beak, horn colour, darker towards the tip; legs and toes, nearly black. I dissected its gizzard which contained the remains of wasps and honey-comb. This is the second

Digitized by Google

instance of the occurrence of this species that has come within my notice, the former example was taken in the neighbourhood of Wymondham, on the 7th of October, last year, this was also an immature male.

Falco cyaneus.—On the 12th instant a female was shot in a turnip-field at Rollesby, a village eight miles distant from Yarmouth. Its stomach contained the remains of a Meadow Pipit (*Anthus pratensis*) and Greenfinch (*Fringilla chloris*): finding the gizzards of these two birds in a perfect condition I opened them, the former contained various grass seeds, and numerous minute insects; in that of the latter I found a few grains of wheat, and some small grit.

Falco cineraceus.—A live specimen, an immature male, was purchased a few days since from a person residing at Sutton, near Stalham; it was obtained in that neighbourhood during the summer, when quite young, and brought up by hand; it is now very tame. The upper parts of its plumage are umber brown, feathers edged with a rufous brown, which assumes a broader margin on the upper wing coverts; throat, breast, belly, thighs, and the under surface of its wings of a reddish brown; upper surface of its tail feathers, brown, marked with bands of a greyish brown; the under surface of a greyish brown, with bands of a pale brown; irides light brown, inclining to grey; cere, yellow; beak, black; legs and toes, yellow; claws, black. An adult female of this species was obtained in the same locality during the latter part of September, 1862; three immature birds were taken alive about the same time, two of these were purchased by the Zoological Society in the early part of October that year.

Strix otus and S. brachyotus.—Several specimens of these two birds have occurred within the past fortnight. The *Strix brachyotus* is however by no means so abundantly obtained as in former years, it makes its appearance in the autumn, returning northwards in the early spring; it formerly used to breed in the Norfolk fens, and may still do so occasionally, but very rarely, as a nest has not been obtained for several years past.

Lanius excubitor.—A male was shot on the 26th instant at Rollesby, near Yarmouth; I opened its gizzard, it contained the remains of a small bird, wasps, and an imago of *Vanessa urticæ*.

Turdus torquatus.—On the morning of the 3rd instant three individuals were observed feeding on a hawthorn hedge that divided two fields in the parish of Eaton, near Norwich. During the course of the afternoon one of their number, a female, was shot; two males have since been obtained, one on the 6th instant at Thorpe, near Haddiscor, and the other

Digitized by Google

on the 10th, the two former having passed through my hands I had an opportunity of observing the difference between the two sexes; both specimens measured 10¼ inches from beak to tail; the male may easily be distinguished from the female, by the band across its chest being white, margins of the feathers faintly tinged with ash grey, in very old birds perfectly white; this band in the female is dull white inclining to a greyish hue, margins of feathers of a pale brown; the beak of the male is black, that of the female brown; both attaining a yellowish hue on the upper edge near the base of the lower mandible. The food of the birds I examined consisted of the hawthorn and blackberries, of which there is an abundant crop this season, which will no doubt prove a most favourable attraction to some of our numerous winter migrants.

FRINGILLA MONTANA.—Small flocks of this species have made their appearance in this neighbourhood during the last few days. I have noticed several individuals that have been caught by a bird-catcher; it has not to my knowledge occurred in Norfolk since the winter season of 1861, when a few specimens were then obtained.

NUCIFRAGA CARYOCATACTES.—I have to notice the occurrence of a magnificent specimen of that very rare visitor, the Nutcracker (*Nucifraga caryocatactes*), which was sent to a bird-stuffer's shop in this city for preservation on the 10th of October last, it having been shot a day or two previously in the neighbourhood of Burgh, distant seven miles north-east of Yarmouth; this bird which is so rarely met with in the British Isles deserves, I think, a short description here. It is an adult male, and measures 13½ inches from the tip of its beak to the end of its tail, and 21 inches across its extended wings to the extreme points; tail five inches; crown of head, umber brown; space between the beak and irides, dull white; the surface of its back, neck, cheeks, lesser wing coverts, and all the under surface of its wings, clove brown; each feather tipped with an elongated spot of dull white; wings, greater wing coverts, and upper surface of its tail, blackish brown; the tail feathers are tipped with dull white, excepting the two centre ones; under surface of tail feathers, greyish brown, tipped with white. Irides, dark hazel; beak, black, straight, and conical, and two inches in length; legs, toes, and claws, black; the centre claw five-eighths of an inch, the hinder three-quarters of an inch in length. Its gizzard contained the remains of a few beetles.

HÆMATOPUS OSTRALEGUS.—A male occurred on the 27th of last August. A second individual was obtained on the sea-beach near Cromer, on the 24th of the following month.

Digitized by Google

NUMENIUS ARQUATA and N. PHÆOPUS.—The former species has occurred plentifully on our marshes during the past few weeks, I have also seen a few specimens of *Numenius phæopus*.

TOTANUS GLOTTIS.—A mature female was purchased in our fish market on the 14th of September.

LIMOSA MELANURA.—Four immature specimens (young birds of the year) of the Blacktailed Godwit *(Limosa melanura)*, were exposed for sale in our fish market on Saturday, the 27th of August last; they were believed to have been killed the day previous in the neighbourhood of Yarmouth, they were quite fresh when the salesman received them, two of them were purchased by a bird-stuffer, and on being dissected proved to be male and female.

MACHETES PUGNAX.—A young male on the 23rd of September.

SCOLOPAX MAJOR.—During the course of the second week in September a fine specimen of *Scolopax major* passed through the hands of a fishmonger, of whom I enquired the locality from whence he had received it; he could not however inform me, having purchased it with birds of the Common Snipe (*Scolopax gallinago.*) *S. gallinago* as well as *S. gallinula* appears to be plentifully distributed on our marshes this season.

COLYMBUS SEPTENTRIONALIS.—I saw an immature female on the 21st instant, which had been shot on our sea-coast, it had been feeding on the common herring (*Clupea harengus*), as its remains and a few pebbles were taken from its stomach.

ALCA TORDA.—An immature specimen was obtained on the sea-beach at Cromer on the 26th ult.

CARBO CORMORANUS.—A fine mature specimen was shot on the 10th instant.

STERNA NIGRA.—On the 30th of August last an immature bird of the Black Tern (*Sterna nigra*) was shot on the marshes at Potter Heigham. A second occurred on the banks of the river Wensum at Thorpe, two miles above Norwich. A third was obtained at Rockland on the 5th of September; about the same time as this latter occurrence three or four individuals were observed feeding on the embankment of the reservoir of the waterworks, which are situated a short distance from St. Martin's river, about two miles from the New Mills, Norwich.

LESTRIS RICHARDSONI.—On the 4th of October last an immature male was killed in the neighbourhood of Burgh St. Peter, near Yarmouth. Its length from bill to end of tail is 15½ inches, and from tip to tip of its

Digitized by Google

wings three feet; the plumage of its head, neck, and throat is of a dull greyish brown; its back, wing and tail coverts are brown, feathers edged with dull white, those on the rump and the extremities of the upper wing coverts, assuming a broader margin; wings black, the shafts of the three longest quill feathers are white; under wing coverts, white intercepted with transverse bars of a pale brownish grey; under surface of the quill feathers white, attaining a pale brownish hue at the points; breast and abdomen of a pale greyish, intermixed with dull white, feathers towards the sides barred with pale greyish brown. Its tail is six and a quarter inches in length, and contains twelve feathers, the two central ones projecting three-quarters of an inch beyond the others, both the upper and under surface of its tail feathers are black, with the exception of the base which is white; beak and cere, pale brown; irides, hazel; legs and base of toes of a yellowish hue, the ends of the toes and the anterior portion of the intervening membranes, black.

Norwich, October 31*st*, 1864.

RARE BIRDS IN NORTHUMBERLAND.

By. T. H. Gibb.

Osprey—*(Falco haliæëtus)*—A few weeks ago I had the pleasure of preserving a very beautiful specimen of this bird captured on the confines of the Cheviot Hills. It proved to be an immature female, measuring 26 inches in length and 65 inches in extent of wings. I found the æsophagus and crop much dilated with the remains of a large trout, the pectoral fin and eye of which were in a good state of preservation, and judging from their size I should say the fish could not have been less than two-and-a-half pounds in weight.

This noble bird is of rare occurrence in Northumberland, and but few persons have been so fortunate as to see him in all his native majesty. Last year, however, two individuals took up their abode on the banks of the river Aln, and afforded the "lucky few" many opportunities of observing them in their piscatorial expeditions. These birds were bold and fearless—caring very little for the presence of man, but eventually one of them (a male) fell a victim to his temerity, as he was shot whilst hawking in too close proximity to a mill.

Digitized by Google

I have had many opportunities of observing the habits of the Osprey in North America. The first I ever saw was in Nova Scotia, seated on the decayed branch of an aged oak, stretching over an extensive sheet of water, and well do I remember the gratification I derived from the sight. With some precaution I succeeded in approaching unobserved a point from whence I had an excellent view of him. For some time he remained stationary on the branch in an upright position, and to a casual observer might have been taken for a part of it, so inanimate did he appear, but eventually he aroused himself to action—unfolded his expansive wings—glanced momentarily around him, and then launched away from the tree and glided over the stream. When midway across the river he frequently poised himself and as often dashed down towards the water—slightly grazing its surface, but ever and again soared aloft without disturbing its placidity. At intervals he described a succession of beautiful spiral curves, now dived through the "ethereal expanse" or bounded upward with surpassing grace—the while intently watching his prey as I could see by the curved neck and drooping head. After half-an-hour was spent in these graceful movements he mounted rapidly aloft and quickly attained no mean elevation, where he remained until I became almost wearied out with watching him, but just when I was on the point of leaving to prosecute my journey which was undertaken in anticipation of meeting with *Ectopistes migratoria*, of which I had heard great numbers were in the vicinity, he began to descend by means of repeated undulatory circles. When again within pouncing distance of the stream he halted in his buoyant flight—for an instant hovered over it, and then with meteoric quickness plunged into the yielding element driving showers of spray in all directions. When he arose he bore in his talons a noble salmon, with which he hied off to his rendezvous on the oak where I doubt not he "fared sumptuously" on the rich repast. At this juncture a covetous desire induced me to attempt his capture, and I stealthily crawled towards him through the sinuosities of the intervening ground with the view of getting him within the range of my fowling-piece, but ere I could succeed in my "fell purpose" he *sans ceremonie* "vanished from my sight like a beautiful dream," by a rapid flight over the forest.

I have met with it in Nova Scotia, New Brunswick, the United States, and in the Canadas. I found its habitat to be very varied, sometimes by the sea-coast, occasionally in the interior by the great "inland seas," and on more than one occasion in localities but ill adapted to the natural economy of the bird.

Digitized by Google

GREEN SANDPIPER—*(Totanus ochropus)*—A very fine male was shot in this neighbourhood on the 18th, and a female on the 21st ult.

I would also mention the following comparatively rare birds as occasionally located here. The Peregrine Falcon (*Falco peregrinus*); Grey Shrike (*Lanius excubitor*); Pied Flycatcher (*Muscicapa atricapilla*); Tree Sparrow (*Fringilla montana*); Crossbill (*Loxia curvirostra*); Spotted Woodpecker (*Picus major*); Wryneck (*Yunx torquilla*).

Alnwick, Nov. 12th, 1864.

ON THE BOTANY OF MALHAM.

BY L. C. MIALL, ESQ.

PART II.

COMPOSITÆ.

Hieracium pallidum, Fries. In the Dillenian herbarium at Oxford, this plant and *H. anglicum*, Fr., are preserved on one sheet, and labelled "Hieracium glaucum pilosum foliis parum dentatis. In loco declivi Gordil prope Malham Cravoniæ vicum." Fries quotes the plant of Dillenius as *H. oreades*, Fr. 23. vi. vii. and ix.

H. Gibsoni, Backh. Gordale! Not uncommon on the Craven scars. "I cannot regard this plant as any form of *H. cæsium*, nor indeed as being very closely allied to that species; its nearly glabrous ciliate leaves and yellow styles indicate a nearer alliance with *H. pallidum*." Backhouse. Fries sets down this plant as *H. hypochœridis*, a variety of *H. cæsium*. vii. viii.

H. murorum, L. Gordale! Malham Tarn. Various forms, which differ chiefly in the degree of acuteness of their radical leaves, occur on the Craven hills. 58. vii.

H. cæsium, Fries? Gordale, J. Tatham. It seems somewhat doubtful whether the *H. cæsium* of Fries is one of the British *Hieracia* at all. I do not know anything of Mr. Tatham's plant. vii. viii.

H. sylvaticum, Sm., var. *rubescens*. This variety which ranks under *H. vulgatum*, Fr., has been found at Gordale.

The account of the Malham *Hieracia* given above is very imperfect. It is far from unusual to find in districts like the Craven hills individuals of this genus which agree imperfectly with any of the species laid down

Digitized by Google

in the books, elaborate as the discrimination of some authors is. Perhaps the divisions of this extensive group cannot be intelligibly defined. Mr. Backhouse's Monograph of the British *Hieracia* is a highly artificial and minute investigation into the differences and relations of the species found in this country—the Symbolæ ad Historiam Hieraciorum of Fries (Nov. Act. Reg. Soc. Scient. Upsal. vols. xiii. xiv.) a more extended enquiry. The Yorkshire *Hieracia* have been thoroughly criticised by Mr. Baker in various publications, and I believe he has issued sets of specimens intended expressly to illustrate the distribution of these plants in North Yorkshire and Teesdale.

CAMPANULACEÆ.

Campanula latifolia, L. Hedge-banks near Malham, frequent! J. Nowell. Common in the whole Settle district, and called by the rustics "Foxglove." 52. vii. viii.

ERICACEÆ.

Vaccinium Vitis-Idæa, L. Malham Tarn! 43. vii.

V. Oxycoccos, L. Malham Moor. 52. vii.

Pyrola minor, L. A not uncommon plant in the woods of Craven, usually frequenting fir-plantations. Woods near Malham, in several places. 45. vii.

JASMINACEÆ.

Ligustrum vulgare, L. Edge of the shrubby rocks above Gordale! Dr. Windsor. I imagine that no doubt can be entertained of the indigenous character of the plant in this station. 54. vii.

GENTIANACEÆ.

Gentiana Amarella, L. Between Stockdale-edge and Malham! Dr. Windsor. Near the guide-post between Lanscar and Ing Scar! 68. viii. ix.

Polemonium cæruleum, L. Gordale and Malham Cove! Indigenous here, but often met with in other places as an escape from cultivation. 5. vii.

SCROPHULARIACEÆ.

Bartsia alpina, L. Gordale! Between Malham Tarn and Kilnsey, J. Tatham. 5. vii.

Euphrasia officinalis, L. Several forms of this plant occur in West Yorkshire, some of which were set down in the Flora of the West-Riding under *E. officinalis, b. gracilis*. The Malham stations there mentioned

Digitized by Google

appear to belong to *E. officinalis*, β *nemorosa*, Pers. *(E. stricta*, Host.*)* Mr. Baker gives a different account of the North Yorkshire *Euphrasias*. "Our common form is authenticated by both Jordan and Boreau as their *E. ericetorum*. A plant which grows upon Stockton forest and Wass moor is *E. rigidula*, Jordan and Boreau! Both these range under *E. nemorosa*, Host., the genuine segregate *officinalis* apparently not being a British plant at all." North Yorkshire, p. 261. vii.

OROBANCHACEÆ.

Orobanche Hederæ, Duby. This or *O. rubra*, Dr. Windsor thinks he found "under the Rocks, on the east side of Malham Tarn in 1802." Considering that neither Ivy nor *Thymus Serpyllum*, upon which these two *Orobanches* are severally parasitical, is found on these rocks, we must presume a mistake. I can find no *Orobanche* at all in the spot mentioned. Dr. Windsor conjectures hesitatingly that the rocks may have "been formerly covered with Ivy." This is a mere guess, and if true, would hardly lessen the difficulty. *O. rubra*, which is found on the limestone of Leyburn must be taken as the most probable of these two unlikely quotations.

BORAGINACEÆ.

Anchusa sempervirens, L. Malham Moor! "No doubt indigenous in the neighbourhood of Settle, and very common." J. Tatham. (Cybele Britannica, ii. p. 282.) "Perhaps wild in Yorkshire and Devonshire." Hooker and Arnott's Flora, 8th ed. p. 294. The Malham station is apparently less open to suspicion than any other British one. Of the Devonshire habitats, Mr. Ravenshaw gives six, (Flowering Plants and Ferns of Devonshire) but marks them all as doubtful, and possible introductions. One of them is given on the authority of the author of the Cybele Britannica, who says of it (ii. p. 282.) that among the several places in which he has seen the plant, this is the only one which "had the appearance of being a natural habitat, and the limited space occupied by the plants in the place in question (that is, in hedges by the road from Barnstaple to Bishop Tawton, Devon), gave rise to a doubt even there." Besides this, Dr. Bromfield reports the species as "truly wild in a retired lane, on a bank amongst weeds, a few miles from Plymouth,"* and Mr. S. P. Woodward thinks it "really

* Goulding and Keys' Flora of Plymouth quotes this *Anchusa* as common there—a circumstance which renders its introduction to Dr. Bromfield's locality less difficult to explain.

Digitized by Google

wild at Lakenham" in Norfolk. The Reigate station has even been claimed as a natural one. Several Scottish claims are advocated by writers to various periodicals. The old habitats in Cornwall complete the list of places in which the plant has been supposed indigenous, At least I know of none besides those mentioned. It is by no means improbable that it is introduced in all, but if wild in Britain at all, we must conclude that it is wild at Malham. vii.

PINGUICULACEÆ.

Pinguicula vulgaris, L. Malham Moor! 71. vi.

PRIMULACEÆ.

Primula vulgaris, Huds., *b. elatior.* Pasture near Malham Cove! J. Nowell. This station and several others were given me for *P. elatior*, Jacq., which I believe does not occur in Yorkshire at all. The Malham plant seems to be that variety of *P. vulgaris* which is known by the stalked umbel. (*P. acaulis, β canescens* of Koch?) Mr. Baker is clearly of opinion that the Oxlip of the North Riding is a hybrid between *P. vulgaris* and *P. veris*, and quotes "a series of the same range of hybrids from both France and Switzerland, under the name of *P. variabilis*, Goupil, and of hybrids also with the true *P. elatior*, Jacq.," which he possesses. It is not improbable that in England we have but three *Primulas* specially distinct—*P. farinosa, P. vulgaris*, and *P. veris*, but many hybrids between the latter two. The following observations are from Hooker and Arnott's Flora (8th ed. p. 345). "On the continent the present species (*P. veris*) and *P. vulgaris* never grow intermingled, and constantly retain the characters assigned to them (a singular mistake!): in England, however, (and in Scotland wherever *P. veris* occurs,) they are found together, and a complete series of intermediate forms, constituting the common Oxlip, may be observed, which must either be accounted fertile hybrids, or proofs of the two extremes being only different races of the same species." iv. v.

P. farinosa, L. Malham Cove, &c.! A common plant in wet places; called by the people of Craven "Bog-bean," a name which properly belongs to *Menyanthes trifoliata*, L. 10. vi. vii.

PLUMBAGINACEÆ.

Armeria maritima, Aut. "In an elevated moist pasture a little above Stockdale, on the road to Malham, plentifully." Dr. Windsor. Probably *β pubescens*, Link.

Digitized by Google

CONIFERÆ.

Taxus baccata, L. Gordale! 33. iv. v.

ORCHIDACEÆ.

Neottia Nidus-avis, Rich. Gordale. 56. vi. vii.

Epipactis ovalis, Bab. Clefts of rocks above Gordale! Dr. Windsor. "About the year 1810 I collected," says Dr. Windsor, "at the request of Sir J. E. Smith, recent specimens of this plant for the inspection of himself and Mr. Sowerby; the former thought it might be the *parviflora* of Ehrhart, but Mr. Sowerby informed me that he could not decide upon its being a distinct species." What characters of Ehrhart's *parviflora* Sir J. E. Smith saw in Dr. Windsor's specimens I cannot tell, but except in trifling variations of the labellum and lower leaves none of my Gordale specimens differ perceptibly from accredited specimens of Babington's *E. ovalis*, Many English botanists have had an opportunity of satisfying themselves as to the real nature of the Craven plant by means of Mr. Tatham's specimens. There can be no doubt that it is *E. ovalis*. vii.

E. palustris, Sw. Between Gordale and Malham Tarn, near Broad Scar! 44. vii. viii.

E. rubra, Sm. (*Cephalanthera*, Rich., *Serapias*, L.) Gordale, J. Nowell. This station may be confidently set down as belonging to *E. ovalis*. "In the New Botanist's Guide the name of *E. rubra* was applied interrogatively to the *Epipactis* of Giggleswick, in Yorkshire, and the Ormeshead, in Caernarvonshire; but *E. ovalis* is the plant of the former locality, and probably of the latter also." Cybele Britannica, ii. p. 421. A further notice in vol. iii. p. 379, confirms this statement respecting the Welsh plant, which is now generally recognized as *E. ovalis*. (Bab. Man., 5th ed., p. 323, Hooker and Arnott's Flora, 8th ed., p. 428). 3.

Habenaria albida. Br. Not uncommon in the pastures about Malham! with *Gymnadenia conopsea* and *Habenaria viridis*. 37. vi.

LILIACEÆ.

Allium oleraceum, L. *b. carinatum*, Sm. Rocks near Malham Tarn, Dr. Windsor. Malham Cove! J. Tatham. This variety (*β complanatum* of Fries) is known by the uniformly thick, channelled, many-ribbed leaf, and must not be confounded with *A. carinatum*, L. (sp. 426), which has stamens twice as long as the perianth. *A. carinatum*, L.

Digitized by Google

does not appear to have been found in England. Koch's *A. oleraceum*, *β latifolium* is apparently the same as the Malham plant. 26. vii. viii.

[*A. Scorodoprasum*, L., has been reported to me on insufficient evidence as found at Malham. I cannot find it there, though the habitat is not unlikely.]

Gagea lutea, Ker. Malham Cove, J. Ward (in Withering's Botany, 4th ed., 1804), J. Tatham. 23. iv.

Convallaria majalis, L. A common plant about Malham in early summer! 47.

C. polygonatum, L. Various Scars around Malham, and generally on the Craven limestone! 8.

Fluviales.

Potamogeton prælongus, Wulf. With *P. lucens*, *P. perfoliatus*, and *P. heterophyllus* in Malham Tarn! 15. vi.

Cyperaceæ.

Blysmus compressus, Panz. Below Malham Cove! 37. vi. vii.

Carex curta, Good. Bog near Malham Tarn, Dr. Carrington, J. Nowell. Edge of Malham Tarn! Dr. Windsor. 46. vi.

C. divisa, Huds. Wet places below Malham Tarn. J. Nowell. 20. v. vi.

C. intermedia, Good. (*C. incurva*, Lightf.) Edge of Malham Tarn! Dr. Windsor. 52. vi.

C. teretiuscula, Good. Bog near Malham Tarn, J. Nowell. Several places on Malham Moor! 32. vi.

C. pallescens, L. Wet places around the Scars, ascending to near 350 yards in Gordale! 56. vi. vii.

C. limosa, L. Near Malham Tarn, Dr. Carrington. 25. vi.

Graminaceæ.

Sesleria cærulea, Scop. Malham Cove, &c.! The Cybele Britannica states that this plant "descends to 300 yards, or lower, in Humber." It may be found at Malham not much over 200 yards above the sea-level. 9. v.

Festuca gigantea, Vill. (*Bromus*, L., *Bucetum*, Parn.) Occasionally by brook-sides in the neighbourhood of Malham, chiefly on the Skipton side! 71. vii.

Hordeum sylvaticum, Huds. Wood at Malham Cove, Dr. Windsor. 22. vii. viii.

Digitized by Google

On an Instance of "Chloranthie" in Verbascum Thapsus.

By Henri van Heurck,
Professor of Botany at the "Kruidkundig Genootschap," Antwerp.

One part of my garden having been neglected, I recently found there a great number of plants of *Verbascum Thapsus*, a plant somewhat rare in the neighbourhood of Antwerp, and one of them presented a very remarkable instance of Chloranthie.

It will be understood that the term *Chloranthie* has been given to the change of all the parts of a flower into leaves. A flower thus metamorphosed, appears in the bud as a little tuft of foliaceous organs more or less compact, and which Mr. George Dickie has compared to a cabbage in miniature. Chloranthie is of frequent occurrence amongst the *Cruciferæ*, *Cyperaceæ*, *Graminaceæ*, and *Juncaceæ*, but is rarely noted in the other orders, and I know of only a single observation of it in the Verbascums, which is that of *Verbascum phlomoides* by M. Dunal.*

The plant which furnished the monstrosity described in this article was extremely stunted. It was only about thirty centimetres (11½ inches) in height, with a few very small leaves, in the axil of each of which was a well developed bud.

On the upper part of the stem, in the axils of each of the leaves, was a short branch of from one to two centimetres in length, covered with transformed flowers. The latter were very much crowded, one of these little branches alone bearing more than fifty flowers. Each of these flowers was composed of a dozen green, lanceolate and almost linear leaflets. In the centre of some of them the leaflets were surrounded by rudimentary anthers: in other instances the anthers were well formed, and borne on the summit of undilated filaments: but in every case the anthers were green, and without any trace of pollen. In the centre of the transformed flower I noted sometimes a rosette of five to eight leaflets, sometimes the rudiments of an ovary.

The cause of the transformation which I have described is quite unknown to me: and on no part of the plant could I find any trace of the work of insects.

* Considerations sur les fonctions des organes floraux colorés et glanduleux, par M. F. Dunal. 4to. Paris, 1829.

Digitized by Google

Observations.

A New mode of Preserving Slugs.—Most of the readers of "The Naturalist," at least that portion of them who study conchology, have, doubtless, at some time or other wished that they could find some mode of satisfactorily preserving the various beautiful molluscs, familiarly called slugs, which form the genera Limax, Arion, Doris, Œolis, and others. Some time ago I made some experiments with a view of attaining this desirable end. After trying spirit of various strengths, glycerine, pure and watered, creosote, and various other solutions, I hit, accidentally, on the following process which answers the purpose admirably.—Make a cold saturated solution of the Bichloride of Mercury (*corrosive sublimate,*) put it into a deep wide mouthed bottle. Then take the slug you wish to preserve and let it crawl on a long slip of card. When the tentacles are fully extended plunge it suddenly into the Bichloride Solution; in a few minutes it will die with the tentacles fully extended in the most life-like manner; so much so indeed that if taken out of the fluid it would be difficult to say whether it be alive or dead. The slugs thus prepared should not be mounted in spirit, as it is apt to contract and discolour them. A mixture of one-and-a-half parts of water and one part of glycerine I find to be the best mounting fluid; it preserves the colour beautifully, and its antisepetic qualities are unexceptional. A good sized test tube answers better than a bottle for putting them up, as it admits of closer examination of the animal. The only drawback to this process is, that unless the solution is of sufficient strength, and unless the tentacles are extruded when the animal is immersed, it generally but not invariably fails. Some slugs appear to be more susceptible to the action of the fluid than others, and it generally answers better with full grown than with young specimens. But, if successful, the specimens are as satisfactory as could be desired; and even if unsuccessful, they are a great deal better than those preserved in spirit; for although the tentacles may not be completely extruded they are always more or less so.—T. G. P.

Field-Days near Scarborough.

No. III.

Oct. 6th, 1864.—Our third field-day was in Harwood Dale. We ascended the course of the Jugger beyond Ravens' Ghyll, till we came nearly to the verge of Fylingdales Moor. This tract is on the Lower Oolite, but there are many indications of the Cleveland ironstone, especially near to Ravens' Ghyll.

Digitized by Google

Our first object of interest was *Carduus heterophyllus*. This is a Montane species, growing abundantly among the Settle Hills. I have met with it also in Perthshire and the English Lake district. Baker mentions it as occurring in the upper part of Newton-dale. The larva of *Lobophora hexapterata* was beaten from willow. Sweet Gale was plentiful, and a *Coleophora* was feeding on it, that may prove new to Britain; though its case, it was remarked, has the aspect of that of a willow-feeder, *viminetella!* Another case-bearer appeared on heath, whose shining black case has gained for it the name of *Pyrrhulæpennella*. The seeds of the whin were fed upon by *Coleophora albicostella*, and the downy ochreous case closely assimilated it to the withered sepals of the plant. A Kingfisher, with its almost tropical plumage, darted by in the sunshine, alighting a little higher up the stream. I was glad to find it in this retired nook. A pretty silky willow *(Salix repens)* was trailing its pliant branches on the ground, and gave indications of seeding abundantly. *Hieracium sabaudum*, one of the northern Hawkweeds, supplied me with the woolly gall of a Cynips, formed on the stem. Linnæus, in his "Fauna Suecica," mentions similar galls on *H. murorum*. I am hoping it may eventually prove a discovery, and am carefully keeping the galls till next season. Near Ravens' Ghyll we met with the Club moss, (*Lycopodium clavatum*,) whose lithe stems were creeping closely among the scant herbage. The spores of this Lycopod are highly inflammable. An interesting case-bearer, *(Coleophora Virgaureæ,)* feeding on the seeds of the Goldenrod, was pointed out by our entomological friend. The larva was quite embedded among the seeds, and was very difficult to detect, as its case is clothed with the loose pappus of the seed. It was very abundant in the Dale. We noticed a flock of Redwings consorting together near the waterfall, at Ravens' Ghyll, and could not at first account for their keeping so tenaciously to the spot. Some fruiting plants of the Cowberry, *(Vaccinium Vitis-Idæa,)* soon explained the matter. The birds were feasting on the berries after their long flight from Norway. We found this beautiful plant both in fruit and flower. *Gentiana Amarella*, usually indicative of limestone soil, and *Thymus Serpyllum* were both noticed by us in Harwood Dale. We also saw Junipers in cultivation in the valley, which were said to have been transplanted from Fylingdales Moor. Thus finished our third field-day.—PETER INCHBALD, Storthes Hall, December 1st, 1864.

Digitized by Google

Captures near Selby.—Mr. William Bowers, of the Training College, York, a young but indefatigable entomologist, during last midsummer's vacation, collected in this neighbourhood amongst many others, several of the following larvæ — *Ennomos Tiliaria, Dicranura furcula, D. bifida, D. vinula, Ptilodontis palpina, Notodonta camelina, N. dictæa, N. dromedarius, N. ziczac, Acronycta leporina, Liparis Salicis,* and one *A. alni.* Mr. Bowers has taken splendid imagos of *Boarmia Roboraria, N. trepida,* and *Stauropus fagi.*— Richard Hebson, Bailby Bank, Selby, Nov. 21, 1864.

P.S. In my communication of the 1st instant, I committed an error by stating that the frost had completely destroyed the potatoe *tubers,* instead of the potatoe *leaf,* upon which *A. atropos* feeds.

Plants Collected or Observed this Summer, on the Magnesian Limestone, in the neighbourhood of Pontefract.

Agrimonia Eupatoria. Ledstone and Hillam. Common.

Berberis vulgaris. Ledstone.

Bryonia dioica. Abundant in hedges.

Calamintha Clinopodium. Common.

Campanula glomerata. Common.

Centaurea Scabiosa. Common. Found one plant with white flowers.

Chelidonium majus. Brotherton. Highway hedges.

Chlora perfoliata. Ledstone. Common in some pastures.

Cornus sanguinea. Common.

Daucus Carota. Burton Salmon, Birkin. Common.

Echium vulgare. Near Ledstone. Not common.

Erythræa Centaurium. Common. Found one white variety.

Galium Mollugo. Common.

Gentiana Amarella. Near Ledstone, Glass Houghton. Rather common.

G. campestris. Glass Houghton. Not so frequent as *G. Amarella.*

Geranium pratense. Near Ledstone.

Geum rivale. Burton Salmon, ditches.

Humulus Lupulus. Birkin, Hillam, in hedges.

Inula dysenterica. Burton Salmon. Rather common.

Lythrum Salicaria. Common in drains. Found one specimen with broadly ovate leaves.

Listera ovata.

Lysimachia nummularia. Brotherton Marsh. One or two plants.

Melilotus officinalis. Hillam. A few plants.

Origanum vulgare. Common in old quarries. This plant is much sought after by herbalists.

Parnassia palustris. Glass Houghton; in disused quarry. Not very common.

Digitized by Google

Petroselinum segetum. Hillam; in a grass field.

Plantago major. Burton Salmon. Common.

Ranunculus sceleratus. Burton Salmon, Hillam.

R. arvensis. Corn fields. Common.

R. aquaticus. Ditches. Common.

Reseda luteola. Brotherton, Castleford. Common.

R. lutea. Castleford. Not so common as *R. luteola.*

Rhamnus catharticus. Castleford.

Sagittaria sagittifolia. Aire side, Brotherton. Frequent.

Sanguisorba officinalis? Burton Salmon. One plant not in bloom.

Scabiosa Columbaria. Glass Houghton; a few plants in an old lime quarry; also at Hillam.

Sanicula europæa.

Scutellaria galericulata. Brotherton marsh; ditch sides. A few plants.

Sium latifolium. Burton Salmon. Frequent in ditches.

S. angustifolium. Burton Salmon; ditches.

Spergula arvensis. Hillam. A few plants.

Tamus communis. Abundant in hedges.

Thymus Serpyllum. Common in old quarries and waste places

Viburnum Opulus. Common.

During the summer I have made six tours on the limestone formation on which the villages above mentioned are situate; in my last journey, in August, I was accompanied by Mr. J. Hepworth, a botanist of some experience, to whom I am indebted for assistance in determining some of the plants. —Geo. Roberts, Lofthouse, Wakefield.

Exchange.

Lepidoptera.—I have fine specimens of the following insects, and shall be glad to receive offers of exchange.—*Sesia Bembeciformis, Nudaria mundana, Liparis monacha, Cymatophora fluctuosa, Cymatophora flavicornis, Charæas graminis, Luperina cespitis, Mamestra Persicariæ, Apamea Basilinea, Agrotis tritici, Triphæna janthina, Triphæna fimbria, Triphæna orbona, Noctua Dahlii, Orthosia ypsilon, Euperia fulvago, Dasypolia templi, Agriopis aprilina, Hadena protea, Abrostola triplasia, Plusia chrysitis, Amphipyra pyramidea, Cleora lichenaria, Abraxas grossulariata,* very fine, *Melanippe tristata, Phibalapteryx lignata, Hypena crassalis.* As all my insects are in fine condition, I shall expect the same in return. Those not hearing from me in fourteen days may conclude their offers are not accepted.——James Varley, Almondbury Bank, Huddersfield, December 5th, 1864.

Digitized by Google

Original Articles.

NOTES ON BRITISH BIRDS.

By the Rev. George Jeans.

(Communicated by the Rev. F. O. Morris.)

Osprey.—For two summers after I shot the one I spoke to you of, I saw one haunting the same part of the Solent, though never near the land; and once after it had disappeared from the reach of the naked eye by mounting up in its beautiful spirals, I succeeded in catching sight of it with a telescope and watching it floating aloft for a considerable time. They were said to build at the west end of the Isle of Wight, near the Needles.

Buzzard.—When I was a schoolboy, and carried a gun, a Buzzard chose for his watch-tower a dead limb of a tree, not far from Egham Church. The tree was conveniently placed for his purposes though so near the town, for as it stood alone in a hedge in the field it commanded a sufficient view around for security and for prog. And eager as I was for him, and although he continued to frequent the spot for the greater part of my holidays, he never gave me a chance of a shot at him.

Hen Harrier.—A female was shot here at Bilsby, by the Rev. C. Mason, which is preserved.

Kite.—When I was a boy at Winchester College, Kites were almost always within sight of our "meads" (playground), and one was caught in a trap and kept tame. Now I am told they have not been seen even on the downs about there for some years.

Peregrine Falcon.—One was shot at Sutton here, by my pupil, F. J. Alder, in 1857.

Merlin.—When standing on the rocks at the Lands End, in Cornwall, one dashed past me, flew a little way out over the Atlantic and returned again, passing me within shot. About the year 1834, I shot at and missed one when standing on the same stage (in Stokes Bay, Hampshire,) on which I shot the Osprey some years before.

Marsh Harrier.—In 1851 or 1852 I went to the Blow Well Holt, at Tetney, Lincolnshire, to procure Wood pigeons, one evening about harvest time. A young Ringdove flew out of a tree almost within reach of the

Digitized by Google

end of my gun, and I killed it. At that moment a Marsh harrier, which apparently had been watching it within a few feet, flew out and I had not a second barrel. It did not pick up the game but kept for some days about the place. But though I took much pains I never got a second opportunity.

SPARROWHAWK.—A labourer named George Peart, at Tetney, told me in 1839 that about three years before he had seen in the lane in Covenham, when walking to Louth, a "sparrowhawk" (I suspect it must have been a kestrel) pick up a weasel and mount nearly out of sight. Presently they came down together in the field near and he went up to them; the hawk was dead and he brought it home, the weasel ran away. Mr. Taylor, also of Tetney, told me that in 1844, when he was riding in Holton, (near Swinhope,) he saw a similar occurrence, only that in that case the weasel dragged the hawk into the hedge.

SHORTEARED OWL.—Frequents the marsh in North Cotes, near Tetney; I have known five killed there, two of which I shot myself and might have shot many more. But once when snipe shooting one rose close to my feet, and as I did not shoot at it seemed quite unconcerned, and presently another joined it, and they gave me an hour's exquisite pleasure in watching their fine evolutions, and their contemptuous treatment of two carrion crows that endeavoured to mob one of them, until one of the crows nearly paid for his temerity with his life. The crows then left them in undisturbed possession of the sky, and afterwards I could never have injured a shorteared owl. Their flight, I think, is finer and more self-confident than that of any the Falconidæ of their size; and daylight is no more inconvenience to them than to a hawk.

EAGLE OWL.—One was taken alive in Norfolk, in 1853, and brought to my brother-in-law, the Rev. J. Bramhall. It was purchased by the Rev. C. W. Bagot, of Castle Rising, where I saw it dining on a rook.

GREAT SHRIKE.—Common at times near both Tetney and Alford. There was a hedge between Tetney and Thoresby where I often saw them in the spring. The Rev. J. Allott, of Maltby, has three stuffed, which he killed there.

REDBACKED SHRIKE.—Also found at Tetney and near Alford. I have seen them in the former place; and a nest was taken here last year, of which Mr. W. Mason, of Rigsby, has the eggs. Common in Surrey. A pair used to build in my father's premises, at Egham, and as a boy I have shot many on Coopen Hill.

Digitized by Google

Rooks.—Can and do work on moonlight nights in nesting time. So do Carrion crows, but they do not caw near their nests. Indeed it is difficult to perceive whether a crow's nest is inhabited. I had one in my garden (1847) and another within 100 yards of it, and yet I rarely saw or heard any of the parents near either, though they had young. I once saw a rook flying about with two white feathers in his tail. This I believe is not uncommon. But Mr. W. Mason, of Rigsby, shot one all of a brown colour, "like a sparrow," as he expressed it.

Magpie.—Hawks at small birds. One nearly caught a pied wagtail by repeated stoops, after the manner of a falcon, over my garden at Tetney. The quarry eventually escaped but was nearly dead with fear, and probably my presence saved it. Magpies build several nests before they are suited.

Blue Tit.—October 10th, 1839, I found a nest of newly fledged birds, in the Blow Well Holt, Tetney,

Waxwing.—A flock passed over my house at Tetney, close to me, in the winter of about 1852. Two of them were shot the same day by the Rev. W. Johnson, of Grainsby. The Rev. J. Allott, of Maltby, has killed them there, and has two preserved. One was killed near here also by a carpenter, and is stuffed.

Wryneck.—Heard and saw one at Yarburgh, near Louth, June 5th, 1840. Heard one in my own garden, at Tetney, May 7th, 1844. Heard one at Waltham, about the same time as the above. Heard one near my own garden, at Alford, 1861, when my gardener (formerly a game-keeper) heard it too.

Creeper.—Frequents my garden, at Alford, and is often seen in the depth of winter.

Great Spotted Woodpecker.—I once chased one for a whole day along the banks of the Thames, near Chertsey, in Surrey, but could not get a shot.

Cuckoo.—May 23rd, 1847. Cuckoo very loquacious near the house for a long time, at 2-30 a.m.; moonlight.

Swallow.—George Alington, Esq., caught a pike in a pond, at Humberstone, in 1836; in the stomach of which were the feathers of a swallow, which it had doubtless seized as it bathed on the wing.

Martin.—November 11th, 1838, and October 30th, 1839. A house martin was on each occasion hawking briskly after flies in the same place in Humberstone. In 1860, at the beginning of November, there were five flying about my garden, at Alford.

Digitized by Google

Swift.—One was flying round my house, at Tetney, for hours in the afternoon of September 20th, 1839. On November 24th, I found it dead in the ringing room of the church tower. It was an old bird, and, as I then judged, a female.

Sky Lark.—Pitches on hedges in March and April. This is mostly after descending from high and more commonly after a short descent, and, as far as I can judge, only before nesting has commenced. The bird is usually excited when it does so and will permit a near approach, and then flies away in a horizontal line and in an unusual mode of flight, by a continued vibration of wing. But it is so frequent a thing at that season that I am surprised it has been so little noticed.

Tree Pipit.—Breeds in this parish, at Rigsby.

Snow Bunting.—I shot one at Egham, when a boy, when it was called "a white lark." I have shot several at Tetney, where flocks of them are seen most winters. They fly in a ball, and wheel round more rapidly and more compacted into a dense mass than any bird I know.

Blackheaded Bunting.—Very common at Tetney, where they breed in numbers around the Blow Wells, and in the autumn and early winter are sometimes seen in very large flocks. Occasionally not one is to be seen for months, but they are sure to return to breed.

Ortolan Bunting.—This morning, May 9th, I have been watching a pair of Ortolan buntings, on the lawn, for half-an-hour. My boy wanted me to shoot one, and could I have killed both I might have done so, but I could only have killed one. They have evidently a nest in the neighbourhood.

(To be continued.)

THE BUTTERFLIES OF HIGH WYCOMBE, BUCKS.

By Henry Ullyett.

The number of species taken in this neighbourhood during the last two or three years is thirty-three: this, I think, bears a fair proportion to the total number of British species. There are not many very great rarities to be caught, but among the "good things" *Argynnis paphia* is plentiful. I suspect too that *A. aglaja* and *A. adippe* haunt our heath. A friend of mine caught what he said was *A. aglaja*, but unfortunately it escaped from the net. The beautiful *A. selene* is plentiful on Wycombe

Digitized by Google

Heath, but in no other locality in the neighbourhood. Out of the seven species of "Skippers" that we possess in this country, I have taken five this year, all in one spot. Hybernated specimens of *V. cardui* were rather plentiful in 1862, but none have been seen since. Of the "Blues" we find four species, and they may all be taken on the same hill as the "Skippers." All the following species have been taken by myself except *Edusa* and *Polychloros*, which only visited Wycombe three or four years ago. I have seen the specimens that were then caught. I append a list, ommitting only those species that are "common everywhere."

Gonepteryx rhamni. Common.

Colias edusa. Taken three or four years ago.

Argynnis paphia. Head quarters at Winch Bottom.

A. Euphrosyne. Dean Garden Wood.

A. selene. Taken this year on Wycombe Heath.

V. polychloros. Taken three or four years ago, when the larvæ were plentiful.

V. Atalanta. Dean Garden Wood, &c. Rather rare.

V. cardui. I took a hybernated specimen in May, 1862, near Keep Hill.

Arge Galathea. Whittington Park and Dean Garden Wood, this year for the first time.

S. tithonus. Very plentiful in Dean Garden Wood and Hollow Lane.

S. hyperanthus. Do.

Thecla rubi. Keep Hill. Plentiful.

Lycæna agestis. Keep Hill.

L. corydon. Do.

L. argiolus. Do.

Nemeobius lucina. Dean Garden Wood.

Syricthus alveolus. Keep Hill. Very abundant.

Thanaos Tages. Do.

Hesperia comma. Do.

H. sylvanus. Do.

H. linea. Keep Hill.

SPONTANEOUS EXOTICS.

By James Britten.

[*Continued from page* 234.]

Order XII.—Caryophyllaceæ.

Dianthus barbatus, L. This well-known garden flower has been found in several places where it does not appear to have been planted. In Surrey, it occurred "in furze bushes on the bank, at the Wandsworth or eastern end of a lateral cutting, on the line of the London and South

Digitized by Google

Western Railway, through Wandsworth Common, opposite to the county jail, and between two bridges which cross the railway." (*Phyt. i.*, 464, *N.S.*) This notice of it appeared in 1856; and the plant has failed to hold its ground in this locality. In Somersetshire, it was found "on a limestone wall, at King's Weston, near Bristol," by Dr. Stokes, (*B.G. ii.*, 401): and in Yorkshire, on a "marlbank, in Studley woods," by Mr. Brunton, (*B.G. ii.*, 690): in this county it has been more recently noticed "in the grounds by the Wharfe side, above Thorp Arch," but only where it has been planted. (*North Yorkshire*, 208.) In Scotland, it appears to have occurred in two or three places near Edinburgh; "Rosslyn Wood; banks of the Water of Leith, between Coltbridge and Saughton-hall; Colinton Woods, near Maleny;" are quoted as localities for it, in *New Botanists' Guide*, 440. In a MS. Flora of Renfrewshire, by Mr. Montgomery, it is mentioned as growing on the "old castle of Elliestoun, naturalised." (*Cyb. i.*, 191.) A native of Germany, &c.

Gypsophila Vaccaria, Sm. *Saponaria*, L. An ornamental plant, cultivated occasionally in gardens, and not unfrequently introduced with flax seed. The earliest record of its occurrence appears to be that given in Cowell's *Floral Guide to East Kent*, where it is stated to have been "found by Mr. Francis, east of the Pier, Herne Bay," in 1832; in the same county it was noticed in July, 1864, "in a field of vetches, between the towns of East Malling and West, or Town Malling, a little south of the direct line joining these two places." Here several plants were noticed, and it may, perhaps, hold its ground for a year or two. See *Botanists' Chronicle*, p. 85. In Surrey, it appeared "plentiful for several years," about Wandsworth and Battersea, (*Phyt. iii.*, 340, *N.S.*); though it has not been observed in that neighbourhood recently: in *Cyb. i.* 196, it is stated to have occurred in Berkshire, though no locality is given for it in that county. In Hertfordshire, it "appeared under the same circumstances with *Erysimum orientale* (on a newly-repaired towing-path, near Ware Mill) in 1841, and was observed plentiful in a field above Ware, by Mr. J. Ansell, in 1845," *Flora Hertfordiensis*, 41: and, with reference to its occurrence in Middlesex, the Rev. W. M. Hind writes:—"In 1862, a single plant was found at the chalkpits, Pinner, I left the root, and a large portion of the plant, in hopes of it producing seed; but no plants have been since found." In Lancashire, it was seen, in 1863, by Mr. Buxton, "on a rubbish-heap, about four miles from Southport," (Dr. Windsor, in *Phyt. vi.*, 419, *N.S.*): and in Yorkshire, "a few plants were

Digitized by Google

found in a cultivated field, near Scarborough," by Mr. William Bean, (*Supplement to the Flora of Yorkshire*, 50. It is recorded from Scotland but once, from "a field of flax, in the parish of Alves, Morayshire, in July, 1842," where it was observed by Mr. Wilson, of that place; J. B. Brichan, in *Phyt. i.* 553, *O.S.*: and it does not appear to have occurred in Ireland. It does not seem probable that this plant will permanently establish itself in this country; at present it is but "a casual straggler, introduced with clover seed, flax, or otherwise." *Cyb. i.*, 196. A native of the South of Europe.

Silene catholica. Ait. "Was found in the village of Great Livermere, near Bury St. Edmund's, Suffolk. The collector must enter the park from the village above-named, by the park-gates, or obtain permission from the gate-keeper to pass through the lodge on the left hand, and then proceed a short distance southward, amongst the trees separating the park from the grounds of the parsonage house, where its habitat may be found with no difficulty." George Wolsey, in *Phyt. ii.*, 220, *N.S.* A native of Italy,

S. Armeria, L. A common garden plant which has occurred in a semi-naturalised state in many localities in England. It was first recorded by Dr. Richardson, who found it "on the banks of the river, half-a-mile below Chester;" *R. Syn. iii.*, 341: since which time it has appeared in many of the English counties. In Kent, it occurred in 1843-4, "on a very wild station near the Medway, towards Yalding, far from house or garden;" Edward Edwards, in *Phyt i.*, 1080, *O.S.* In Surrey, it has been observed "in a cornfield, at Weybridge;" by Mr, Borrer, (*B.G., ii.*, 584,) on the waste ground at Wandsworth Steamboat Pier, (*Phyt. iii.*, 335, *N.S.*); and "occasionally on old walls about Reigate, but escaped from gardens, and very uncertain in its appearance." *Flora of Surrey*, 309. In Hertfordshire, it grows "on the old privy garden wall, at Hatfield, opposite the church;" *Flora Hertfordiensis*, 72: and in Essex it is recorded from two or three places; having been found at "Walden and Newport," by G. S. Gibson: and "between Colchester and Berechurch," by the Rev. W. L. P. Garnons, *Flora of Essex*, 45. In Devonshire, the Rev. T. F. Ravenshaw noticed it "near Stover"; (*Flowering Plants and Ferns of Devonshire*, 11): and it has occurred in Jersey, "in a lane near La Haule;" M. Piquet, in *Phyt. iv.*, 1093, *O.S.* "The *Yorkshire Flora* indicates it to have been found below Settle," (*Cyb i.*, 201); and, in the *Supplement* to that work, it is said by Mr. Simpson, to be "naturalised

Digitized by Google

plentifully on the embankment of the Northern Counties Union Railway, near Bedale," (p. 50): Mr. Baker also records it from Thirsk, &c., *(North Yorkshire*, 209): and I have seen a specimen collected by Mr. Ibbotson, in a sandy field, near York, where it was gathered in 1863. There can, however, be little doubt that in many of the above localities it is a garden escape, which will fail to retain its hold for long in any one spot. It is not recorded from Scotland or Ireland. A native of the South of Europe.

S. rubella, D.C. I found a plant of this in 1864, on some sandy waste ground, on Wandsworth Common, Surrey, not in the immediate vicinity of houses. A native of Portugal.

Lychnis Coronaria, L. I observed some roots of this common garden plant on waste ground, at the commencement of Putney Heath, Surrey, in 1863. "A few examples" were observed in September last, "on or very near the summit" of a rock, near Quatford, Bridgnorth, Shropshire. See *Botanists' Chronicle*, p. 103. A native of Italy.

Arenaria fastigiata, Sm. "On the rocks on the mountains of Angusshire and Fifeshire, Mr. G. Don." *Cyb. i.*, 220. "Erroneously recorded, or subsequently extinct in Britain."

A. balearica, L. "Grew on the north wall of the tool or fruit-house at Moncrieffe House, Perth, in June, 1859. There was only one patch of it, about a foot in diameter." John Sim, in *Phyt. v.*, 32, *N.S.* Its appearance in this locality gave rise to much discussion among certain botanists, as may be seen from the work referred to. Mr. Sim has recently informed me that the wall on which the plant grew has been thrown down, so that it has probably disappeared from the neighbourhood. "Grows now [1861] on several walls and garden buildings on the estate of the Earl of Ilchester, Abbotsbury, Dorset. It has been observed there for several years." W. Pamplin, in *Phyt. v.*, 127. *N.S.* In this locality the plant appears to be permanent. No clue has been obtained as to its introduction. A native of Majorca, &c.

Stellaria scapigera, Willd. "By the sides of rivulets on the Scottish mountains. In Perthshire, and Loch Nevis, Invernesshire." Mr. G. Don. *Eng. Flora, ii.*, 304. This plant, which is "said to have been found by Don by the sides of rivulets between Dalwhinnie Inn and the old Kirk of Laggan, Perthshire, is apparently a monstrosity of *S. graminea*, and probably from Don's garden; some plant he met with being mistaken by him for the same as the one he had in cultivation." *English Botany, ed.* 3, *ii.*, 99.

Digitized by Google

Buffonia tenuifolia, L. "Said to have been formerly found on Hounslow Heath, and about Boston in Lincolnshire. It was unsuccessfully sought in the latter place by Sir Joseph Banks, who thought that *Bupleurum tenuissimum* had been mistaken for it. Perhaps *Moenchia erecta* was thus mistaken on Hounslow Heath." *Cyb. i.* 223.

Cucubalus baccifer, L. "Gathered in hedges in Anglesea," and communicated to Dr. Richardson by D. Fowlkes. *R. Syn. iii.* 267. "Rev. H. Davies never found it." *B. G. i.*, 4. "In the margin of my copy of Ray's *Synopsis* against *C. Plinii (C. baccifer)*, a former possessor of the book has written, as a habitat 'Springfield, Essex,'" H. O. Stephens, in *Phyt. i.*, 295. *O.S.* There can be little doubt that, in each of these cases, some error must have occurred, but the plant certainly grew in the Isle of Dogs, though it may now have disappeared thence. "The locality in the Isle of Dogs is on the banks of the ditch on the left hand of the road from Blackwall to the Ferry House, and there, if not truly wild, it is at least perfectly naturalised," Geo. Luxford, in *Phyt. i.*, 255. *O.S.* It existed here as recently as 1852, when it was gathered by Mr. Thomas Westcombe, of Worcester, who "found the plant growing in considerable abundance in the old station, and thought there was no probability of its becoming exterminated." *Phyt. iv,,* 609. *O.S.* Are there any grounds for supposing that the plant was here introduced? or is it not rather a genuine British species? I shall be glad to learn whether it has been more recently observed in the Isle of Dogs.

Order XIV.—Malvaceæ.

Malva Alcea, L. "Frequent on the borders of fields, &c." *R. Syn. iii.*, 452. "In the counties of Warwick, Leicester, and Nottingham." *Flora Anglica.* There can be no doubt that the plant here intended by this name is only *M. moschata;* the true *M. alcea* not having been found in England, though it is a species not unlikely to occur. A native of

M. pusilla, E. B. *M. borealis*, Wallm. "Said [by Hudson] to have been found at Hythe in Kent, which requires confirmation. Whether this is truly the species intended by Ray (and by Hudson under the name of *M. parviflora*) may be still uncertain. It has also been reported to me from Glamorganshire." *Cyb. i.*, 240. "Specimens gathered in Pembrokeshire." *With. Arr. iii.*, 599.

M. Nicæensis, All. "Some few specimens of this species were found by Mr. Thomas Moore in 'Battersea Fields, on the embankment opposite

Digitized by Google

the Chelsea Botanic Gardens.'" *Cyb. iii.*, 329. "Battersea and Wandsworth" (*H.B.P.* 745); it has not frequently occurred in this neighbourhood. A native of Italy.

M. parviflora, L. Is recorded "from a heap of manure near North Sandwich, Kent," by Mr. J. T. B. Syme, in the *Report of the Thirsk Botanical Exchange Club* for 1863, p. 10. A native of Barbary.

M. verticillata, L. "Near Llanelly, South Wales (*Bab. Man. ed. v.* p. 56); where it appears to be completely naturalised. "When I first observed it, there were many hundreds of specimens scattered over three fields, though most abundant in one: last autumn we could only obtain five specimens, but this year [1847] it has appeared again in considerable abundance. I have procured about a hundred specimens, besides leaving quite as many, being anxious that the plant should not be exterminated. I have found several specimens in an old quarry adjoining the field." James Motley, in *Phyt. ii.*, 973. *O.S.* No clue has as yet been obtained as to its introduction to this locality. A native of China.

M. crispa, D.C. Is stated in Irvine's *London Flora*, p. 304, to be "apparently naturalised," but no locality is given. It has occurred in Essex, where it "was found Sept., 1799, near Low Leyton, and drawn for *Eng. Bot.*, but not published, because it had no claim to be considered a a native plant." *Flora of Essex*, p. 53. "In the field at Llanelly, with *M. verticillata*." |G. S. Gibson, in *Phyt. ii.*, 935. *O.S.* It is occasionally cultivated for culinary purposes: and may be but a form of the last-named species. A native of Syria.

M. ambigua, Guss. *M. microcarpa*, Rehb.? These two are reported by Mr. Irvine from the Wandsworth steamboat pier, in *H.B.P.*, 745, the latter doubtfully. Both are natives of Europe.

(To be continued.)

Reports of Societies.

Accrington Naturalists' Society.—The monthly meeting of this society took place on Saturday evening, Nov. 12th, the president, Mr. William Naylor, in the chair. After the usual routine of ordinary business, the president exhibited an extensive series of coleopterous insects, collected by him principally at Lytham and Whalley, a few of which are here noticed: *Pyrochora rubeus, Ripiphorus paradoxus, Cleonus sulcirostris, Otiorhynchus picipes, O. rugifrons, Strangalia melanura, Saperda popul-*

Digitized by Google

nea, Timarcha lævigata, Coccinella 11-*punctata, C. mutabilis, Lathrobium filiforme, L. longulum, Silpha thoracica, Grypidius equiseti, Geotrupes stercorarius,* var. *puncticollis, Phyllobius Pyri, P. Alneti, Nebria Gyllenhalii, N. brevicollis, Erirhinus acridulus, Pterostichus strenuus, Ægialia globosa, Gastrophysa Raphani, Athoüs hæmorrhoidalis, A. vittatus, Sphæroderma Cardui, Trichoderma pubescens, Lyctus brunneus, Apion Carduorum, Hydroporus xanthopus, Colymbetes notatus,* and *Agabus chalconotus.* Mr. Alexander Allan exhibited a number of marine shells, chiefly from Tenby, some of which he kindly distributed amongst the members. We noticed *Modiola tulipa, M. modiolus, Saxicava rugosa,* and *Venus fasciata.* Mr. John Bird exhibited an excellent collection of Land and Freshwater Shells, numbering upwards of seventy species, mostly collected in the neighbourhood of Accrington. Many more interesting specimens were placed upon the table.—R. WIGGLESWORTH, Hon. Sec., 26, Maudsley Street, Accrington.

Observations.

Nest of the Hawfinch, near London.—I have in my collection a nest of the Hawfinch, (*Coccothraustes vulgaris,* containing four eggs, which was taken in Highgate wood, last May. Is it not somewhat extraordinary that so shy and rather uncommon a bird as the Hawfinch is represented to be, should choose for the place of its nidification a situation so close to London as the above locality?—EDWARD STONE, 9, Cathcart Hill, Junction Road, Upper Holloway, December 1st, 1864.

The Great Grey Shrike, in Yorkshire.—It is almost with regret I have to announce the capture of two birds of this species, (*Lanius excubitor.*) I say regret, because were our rarer birds spared and encouraged to visit us, or remain with us, we should have opportunities of studying their economy at home, without the expense and inconvenience of travelling to countries where they abound in greater numbers. But, unfortunately, few of these birds are permitted to return to their native haunts; were they allowed to do so they would assuredly come again to us, and bring companions with them. One of the specimens above mentioned was shot at Brook Royd Mills, Stainland, near Halifax, about the 1st of November; the other was shot by a Mr. Jagger, on the 9th of November, at Whitwood, near Wakefield. They were brought in the flesh, for preservation, to Mr. Geo. Lumb, Kirkgate, Wakefield. Both are adult birds in fine plumage.——G. ROBERTS, Lofthouse, Wakefield.

Digitized by Google

Occurrence of the Lesser Spotted Woodpecker in the Neighbourhood of London.—I have the pleasure of recording that on the 10th Dec. a beautiful female of the Lesser Spotted Woodpecker (*Picus minor*) was shot at Cookham, and on the 26th of Dec. I shot four male specimens of *Fringilla montium.*—R. B. SHARPE, 186, Strand, London, Dec.. 1864.

Three Days at Sherwood Forest.—In the early part of August last, I spent three days in the old Forest of Sherwood, which is noted for the many rare and local Lepidoptera that may be taken in it. At Worksop I met a brother Entomologist, from Sheffield, Mr. Hides; and we proceeded together on our way to Ollerton, where we noticed many larvæ and pupæ of that common beetle *Coccinella 7-punctata*, on the telegraph posts, and we found the forest swarming with them. We commenced work in good earnest by pupa digging, and were soon repaid by turning up *Notodonta dodon a*, *Hadena protea*, and *Agriopis aprilina*. In the evening we commenced sugaring, and found a beautiful specimen of *Acronycta leporina*, on the trunk of a tree. We sugared the long ride, and our eyes were soon gladdened by the sight of swarms of insects, in many cases literally covering the part of the tree on which the sugar was spread. Our first night's captures, omitting of course the commoner insects, some of which appeared by hundreds, included *Triphæna janthina.* six; *T. fimbria*, eight; *T. interjecta*, one; *T. orbona*, seven; *Noctua rhomboidea*, one; *N. Dahlii*, twenty; *Euperia fulvago*, eighteen; *Amphipyra tragopogonis*, six. As we returned to our lodgings we collected the following insects on the flowers of the Ragwort: *Hydræcia nictitans*, twelve; *H. micacea*, four; *Heliophobus popularis*, one; *Cerigo cytherea*, one; *Agrotis tritici*, six. We arrived at the "Old Jug and Glass," highly gratified with the result of our day's work. Next day the party was increased to seven, by the arrival of Mr. Hicks, from Sheffield, and some friends. We commenced beating for larvæ, and ere long had boxed two fine specimens of *Stauropus fagi*, and several *Notodonta dodonæa*, *Orgyia pudibunda*, and *Ephyra punctaria*; commoner species were abundant. We also took two fine imagos of *Crocallis elinguaria* and one of *Ennomos erosaria*, besides one of the latter in the pupa state. In the evening we were again successful at sugar, taking, in addition to our last evening's captures, *Boarmia repandata*, and *Melanthia ocellata*; we also took *Luperina cespitis*, and *Crambus latistriellus*, on the Ragwort

Digitized by Google

flowers. On the following morning we were up betimes, and started out to collect *Charæas graminis*, and fine sport we had, for they were flying by hundreds from eight to nine o'clock. After breakfast I started on my return journey, taking a few things on the way, among which I may mention *Liparis auriflua*, which had just emerged from the pupa state.—JAS. VARLEY, Almondbury Bank, Huddersfield, Nov. 1864.

Entomological Notes from Sherwood Forest.—On the 20th of August, I started, in company with Mr. Lumb, for Sherwood Forest, at which place we arrived about eight o'clock the same evening, just in time to lay on our sugar, a stock of which we had brought with us. The night was cold and scarcely suitable for the purpose, however we obtained one *Euperia fulvago*, ten *Noctua Dahlii*, and a few good specimens of *Amphipyra pyramidea*. On the Monday we set to work pupa digging, obtaining nearly 150, all of which, with the exception of five *Notodonta dodonæa*, proved to be *Agriopis aprilina*. In the evening we sugared and took seven *E. fulvago*, two *C. diluta*, and a few of *N. Dahlii*. Tuesday—Tried beating, but without success; finding digging a much more profitable occupation we pulled out our trowels and succeeded in taking about 170 pupæ, including three specimens of *N. dodonæa*. At dusk we again sugared, but the night being frosty, we boxed but six insects, viz.: one *E. fulvago*, three *N. Dahlii*, one *C. diluta*, and one *T. janthina*. Wednesday—This morning the cold was so intense that our lamp oil was frozen in the bottle. After breakfast we dug seventy pupæ, thirteen of which were *N. dodonæa*; unfortunately ten of these were ichneumoned. We sugared at night, but a cold north wind blew in strong gusts, and we took literally nothing. Thursday—Dug 160 pupæ, nearly all *A. aprilina*. In the evening we sugared the trees, boxing three *E. fulvago*, eighteen *N. Dahlii*, six *N. glareosa*, one *H. protea*, and a worn specimen of *P. chi*, the first we had observed at sugar. A beautiful specimen of *Luperina cespitis* was taken flying: the flowers of the Ragwort yielded worn specimens of *A. tritici* and *H. micacea*. Friday—We spent the day in pupa digging, and succeded in turning up upwards of 240, chiefly *A. aprilina*, The sugar yielded us eight *N. Dahlii*, six *N. glareosa*, two *C. diluta*, and one *X. cerago*. Saturday—Noticed large flocks of Lapwings, Linnets, and Goldfinches. After breakfast we again tried beating, but, as before, we obtained nothing worthy of note, so we returned to our old employment of digging, which, after several hours of hard work, produced us 225 pupæ. During the

Digitized by Google

day the wind changed from N. to S.W., and the night being warm we determined to see what our sugar would produce; this we accomplished in a very short time, and the results shewed better success than on any previous evening; the following insects being boxed:—twenty *E. fulvago*, twenty *N. Dahlii*, one *C. diluta*, four *N. glareosa*, and several commoner species. On coming away from our sugaring ground we saw *L. cespitis* flying in all directions, but they flew so fast that it was with great difficulty that we succeeded in capturing five specimens. On dividing our spoil we found that the week's work had yielded us nearly 1000 pupæ,—most of which were *A. aprilina;* we may therefore expect to obtain some good and interesting varieties,—together with a large number of perfect insects taken at sugar. This being our last day we started for home early next morning, much pleased with our journey.—B. Gibson, Wakefield, December, 1864.

Field-Day near York.

No. IV.

Oct. 7th, 1864.—Our last field-day was spent on Strensall Common and Stockton Forest, about six miles from York. The soil is principally sandy: plantations of fir and alder occasionally vary the desolate tract of uncultivated heather-land.

By the side of the York and Scarborough line we found a profusion of a somewhat local willow, *(Salix repens,)* which was feeding in plenty *Lithocolletis quinqueguttella*. The larva puckers the underside of the silky leaves, contracting them towards the mid-rib, so as to give the leaf a somewhat curled appearance. This willow, we learn from Baker, is extremely abundant on the sandhills of the coast of Lancashire. The pretty little thorn-clad *Genista anglica* was eaten by a Coleophora named *Genistæ*. It is particularly partial, I am told, to this species: the traces of its feeding are readily observed on the leaves of the plant. We obtained the yellowish-white cases in some quantity, and the tenants had attained various stages of growth. Two of the Button-moths, *(Peronea hastiana* and *P. cristana,)* were on the wing on Strensall Common. The pretty larva of *Clostera reclusa*, which was also feeding on the Dwarf Willow, was being sucked by a large Hemipteron, which has the name of *Picromerus bidens*. We saw several empty skins of this caterpillar during our rambles, nor is its enemy very particular as to its diet, as it will attack the hairy caterpillars as well as the smooth ones! The Dwarf Willow offered us also the galls of some Cecidomyia, that may prove distinct from any with which

Digitized by Google

I am acquainted at present. We noticed a Haltica beetle on the plant, that had quite disfigured the foliage by its depredations. *Cemiostoma scitella*, that general lover of the Pomaceæ, was blotching the Crab-tree leaves, as it did the rare Cotoneaster, at Llandudno, years ago. The beautiful Calathian Violet, *(Gentiana Pneumonanthe,)* so common on Stockton Forest, with its fine large azure-blue corolla, was nearly over: I was glad, however, to make acquaintance with its capsules. *Gentiana Amarella* was in full flower. *Nepticula luteella* was busy making its long contorted galleries in Birch leaves. A fine Sawfly larva, which has since made up, was feeding on Alder. It will, doubtless, show itself in May, and prove to be the *Tenthredo lucorum*, of Linnæus. The Ononis, common to the sandy ground of Stockton Forest, is *O. antiquorum*, as its thorny branches abundantly declare. *Nepticula glutinosæ* was mining in the leaves of the Alder; but our best discovery was *LithocolletisStettinensis*, which blotches the upper side of the Alder leaves. Quite a harvest of this local micro-larva was gathered by our entomological friend, whose quick eye and long acquaintance with the leaf-miners readily detected mines, where inexperienced eyes might have sought for them in vain. To this gentleman we are chiefly indebted for the information conveyed in these papers on the micro-lepidoptera. Thus ended our fourth and last field-day.—PETER INCHBALD, Storthes Hall, December 16th, 1864.

CYNIPS APTERA ON THE MAJOR OAK, IN SHERWOOD FOREST.

In September of last year, as some of the members of the "Huddersfield Naturalists' Society" were pupa-digging in Sherwood Forest, they discovered some tuberous-looking galls attached to the roots of the Major Oak. These tubers, which were affixed to the larger woody roots by the slender fibrils, contained larvæ, which on examination proved to be those of a Cynips. The process of their formation would seem to be this:—The mother-cynips pierces the tender fibrils, some distance above the spongioles: the sap, that is drawn up for the nourishment of the tree, stagnates at the place of puncture, and thus nodules are formed to serve as food and protection for the progeny. The nodules were usually in threes, and each contained a single grub. In May of the present year I opened one of the galls, and found the tenant now in the pupa state. The case it had formed within the nut was of papery texture, with glazed darker lining, externally white, internally amber-coloured. I naturally expected the insects would

Digitized by Google

swarm before the summer, but owing to the dry state of the galls they never emerged. In August I cut open another gall and found the gall-fly dead; happily, however, after having undergone the subsequent transformation. As the specific name imports, it is perfectly wingless—thus unlike other Cynipes even within the gall—and it bears considerable resemblance to the species that is instrumental in forming the ink-galls of Commerce, on the *Quercus infectoria* of the Levant. The absence of wings gives the creature a very spider-like appearance, as the abdomen is more rounded than in the Cynipes generally.—PETER INCHBALD, Storthes Hall, December 15th, 1864.

Notes and Queries.

Flora of Manchester.—In your number for December 1st, page 239, "Mr. Buxton's Flora of Manchester" is spoken of. Lest this allusion should lead to mistakes, permit me to say that Mr. Buxton's catalogue (with localities) of the plants growing near Manchester, is termed "Guide." The "Manchester Flora," a much more comprehensive work, was published ten years later, by myself. Both works had a prelude in the "Flora Mancuniensis," a simple catalogue, with localities, published in 1840, "in connection with the Natural History class of the Manchester Mechanics' Institution." This early effort was edited by Dr. J. B. Wood. The title-page states that he was assisted by Messrs. Grindon, Buxton, Crowther, and others.—LEO H. GRINDON.

Exchange.

Ornithology.—I shall be very glad to open a correspondence with any one with a view to exchange specimens of Ornithology. I have many good specimens for sale or exchange. Please address Mr. R. B. SHARPE, 186, Strand, London.

Lepidoptera.—I have the following for Exchange:—*V. polychloros, A. leporina, A. fuliginosa, G. papilionaria, N. dromedarius, L. dictæoides, T. Munda, T. derasa, L. dispar, L. multistrigaria, B. neustria, T. W. Album, A. mendica, A. salicis, C. flavicornis, C. exoleta, N. ziczac, E. tiliaria, P. monacha, G. flavago, C. graminis, A. myrtilla.* Among my wants are *D. euphorbiæ, G. quercifolia, E. versicolora, G. Illicifolia.* Parties not receiving an answer within ten days may conclude their offers are not required.—R. HEBSON, Barlby Bank, Sheffield.

Digitized by Google

Original Articles.

OBSERVATIONS ON THE DIFFERENT METHODS PROPOSED FOR THE CLASSIFICATION OF THE SPECIES OF THE GENUS *ROSA, Lin.*

By Mons. Alfred Deseglise.

Linneus knowing but 14 species of Roses[1] took for the basis of his divisions of the genus *Rosa* the form of the fruit: 1st Globose; 2nd Oval[2]: quite secondary characters, but which might be admissible at the period when this great legislator of the natural sciences brought out his *Species Plantarum*. This division has since been adopted by several authors. I shall endeavour to give a rapid sketch of the different classifications proposed by eminent botanists, in order to point out the much to be regretted confusion which reigns in these various methods. The imperfect knowledge we even yet possess of numerous species of Roses,

(1) I speak here only of the species described in the *Species plantarum* (1764); for the herbarium of Linneus, preserved in the rich botanical galleries of the Linnean Society of London, contains 50 specimens of roses, almost all in a good state of preservation: there are about 30 European species, the half of which are ticketed on the sheet by the hand of Linneus himself. Generally there is only the name given, sometimes a note as well: amongst others, a great number are from Jacquin, and are accompanied by tickets, containing numerous notes and remarks on the sheet; two or three bear tickets from a French correspondent of Linneus, (Du Roi ?): there are also on some sheets notes in pencil by Sir J. E. Smith. I am indebted for these details to the kindness of Mr. J. G. Baker, of Thirsk, and have pleasure in taking this opportunity of repeating my thanks for the generosity with which he placed at my service the Roses of England, accompanied by numerous notes and observations, for the purpose of making a comparison between the French Roses and the types preserved in the Herbarium of Linneus.

(2) The term *oval*, when used to distinguish the form of the fruit, seems to me to be vicious. This word can only be applied to plane surfaces, as a leaf for example, and not to a solid as a calyx-tube or a fruit. I think we ought at once to admit four types of fruit:—1st, *Globose;* 2nd, *Ovoid*, which, like the egg from which it derives its name, is broader at the base than at the summit: (the greater proportion of authors have no doubt used the term *oval* in the sense of *ovoid*); 3rd, *Obovoid*, the inverse of *ovoid, i.e.* broader at the summit than at the base; 4th, *Ellipsoid*, as broad at one end as at the other, since taking the form of the ellipse as having both extremities identical in size, we should never have broad and narrow extremities. These forms once admitted, we might indicate in each species how they vary; thus we should speak of a globose fruit depressed at the summit or at the base; elongated ellipsoid fruit, rounded or pointed at each end; ovoid, elongated or attenuated at the summit, &c.

Digitized by Google

besides, that in very natural genera it is often difficult to establish general characters which shall admit all the species of a single group, is doubtless the reason we have not yet attained to more satisfactory results.

De Candolle was, I believe, the first botanist to seek for another character than the form of the fruit, for the sub-divisions of the genus *Rosa*. It was in his "*Catalogus Plantarum horti botanici Monspeliense*," (1813) p. 137, that this celebrated botanist made the observation that many roses having their styles united in a column, ought to form a distinct section, which he proposed to call *Synstylæ*[3]. In the supplement to his "*Flore Française*" (1815) De Candolle makes no mention of this section which he had proposed in 1813.

Desvaux, "*Journal botanique*," 1813, vol ii.—Roses indigenous to France—makes two sections, according to the condition of the styles :—1st Styles united; 2nd Styles free. These divisions have been admitted by a great number of authors, as Chevalier, "*Flore generale des Environs de Paris*" (1827); Merat, "*Flore des Environs de Paris*," ed. 4, (1836); Guepin, "*Flore de Maine-et-Loire*," ed. 2, (1838); Boreau, "*Flore du Centre de la France et du bassin de la Loire*," (1840, 1849, 1857); Delastre, "*Flore de la Vienne*," (1842); Godet, "*Flore du Jura*," (1853); Lloyd, "*Flore de l' Ouest de la France*," (1854); &c. This division proposed by Desvaux furnishes one very good section, that with the styles united into a column, which, by the species it includes, having the same form of prickle, leaves without glands beneath, and very nearly the same habits, is certainly a very natural section. The second section cannot be admitted without breaking the series of the species, in spite of the sub-divisions which may be made in it; for in this section we find species which from the divisions of the calyx, and prickles mixed with glanduliferous setæ, seem badly placed in the same group which includes species in which the prickles are all uniform, and others which are without prickles; the leaves present a still greater anomaly, since species with glabrous, villose, tomentose, and glandulose leaves are all comprised in the same group.

Rau, "*Enumeratio rosarum*," (1816), divides the 24 species admitted by him, for the environs of Wurtzburg, into two sections, from the presence or absence of glands on the under surface of the leaves. These characters are very useful for sub-divisions, but of no value whatever for

(3) De Candolle, in making this word, seems to me to be guilty of a barbarism. The principles of etymology, the formation of words given in the grammars, and the Greek words (συστελλω, Systole in anatomy) absolutely require *Systylæ*.

Digitized by Google

the larger sections. Thus according to this method we find in the same group, *R. arvensis*, Huds.; *R. geminata*, Rau; *R. pumila*, L.; *R. cinnamomea*, L.; *R. alpina*, L.; *R. spinosissima*, L.; *R. collina*, Jacq.; and *R. canina*, L.; species differing widely from one another in their habits, styles, prickles, leaves, and calycinal divisions.

LEMAN, "*Bulletin de la Soc. Philomatique*," 9th May, 1818, divides the roses into three sections after the form of the serration of the leaves. The first section "*Folioles simpliciter dentatis*," places *R. dumetorum*, Thuil., alongside *R. cinnamomea*, L., two species differing much in their leaves, prickles, bracts, and calycinal divisions: *R. spinosissima*, L., figures badly at the side of *R. Bengalensis*, Pers. Is *R. rubrifolia*, Vill., well placed between *R. leucochroa*, Desv., with united styles, and *R. canina*, L.? In the second section "*Dentibus foliorum margine inferiore serratis*," *R. verticillacantha*, Mer., comes between *R. Gallica*, L., and *R. alpina*, L., three species which have no bond of union whatever! *R. eglanteria*, L., is in this section placed with *R. biserrata*, Mer. The third section "*Dentibus foliorum utrinque margine serratis glandulisve*," if it included only the *rubiginosæ* would be sufficiently natural.

DE CANDOLLE in 1818 proposed in the "*Musée Helvetique*, of Seringe,[4] a general classification of the roses then known, under the following eleven sections:—*a*, Synstylæ; *b*, Rubiginæ; *c*, Gallicanes; *d*, Chinoisæ; *e*, Canellæ; *f*, Hebecladiæ; *g*, Pimprenellæ; *h*, Villosæ; *i*. Centifoliæ; *j*, Caninæ; *k*, Eglanteræ. These sections were adopted by Besser, *enumerat. plant. Vohl and Pod.* (1822).

THORY, "*Prodrome de la Monographie du genre Rosier*," (1820) makes five grand divisions, subdivided into 27 groups; several of which are composed of species altered by cultivation. The five divisions are all artificial and without any connecting bond, whilst the groups are established upon characters of little importance, and often include but a single species.

LINDLEY in 1820 brought out his monograph of the Roses, of which a translation by de Pronville was published in French in 1824. He divides the species of the genus *Rosa* into eleven sections[5] —i. SIMPLICIFOLIÆ, established with good reason for *R. berberifolia*, Pall. ii. FEROCES.

(4) In spite of numerous searches I have been unable to obtain this pamphlet by Seringe; and not being acquainted with the characters on which these divisions are founded, I simply give their names without any remarks upon them.

(5) Not having the work of the English botanist in my possession, I quote the sections from de Pronville's translation, and upon this my criticisms are founded.

Digitized by Google

iii. Bracteatæ. These two sections include only species not found in Europe.[6] iv. Cinnamomiæ. The species in this section are almost all strangers to this country. v. Pimpinellifoliæ. "Stems with numerous prickles or unarmed, peduncles without bracts, leaves oval or oblong, sepals connivent, persistent, disk almost absent." If this section only included the *pimpinellifoliæ* it would be very good; but is *R. Sabini*, Woods, in its right place here? The grey-tomentose leaves (on both sides) and glandulose beneath, and the pinnatifid calyx-divisions, are sufficiently decisive characters to remove this species far from *pimpinellifoliæ*. The same may be said of *R. involuta*, Smith. vi. Centifoliæ. "Prickles unequal, mixed with setæ, leaves oblong or oval, rugose, disk fleshy, sepals pinnatifid." In this section we find *R. Gallica*, L., and *R. provincialis*, Ait., with *R. Damascena*, Miller. This last species seems to me too widely different in all its aspects, to be united in the same group with the two preceding. vii. Villosæ. "Stems upright, prickles straight, leaves oval or oblong with divergent serrations, sepals connivent, persistent, disk fleshy." *R. spinulifolia*, Dematr., with leaves glandulose beneath and glabrous above is not in its proper place here; the same with *R. alba*, L., which with its arcuate prickles, and leaves glabrous beneath, is nearer the *Caninæ* than the *Villosæ*. viii. Rubiginosæ. "The numerous glands which cover the inferior surface of the leaves, are, I think, sufficient to distinguish this from all the other divisions." A very natural section, bearing upon it a stamp by which it may easily be recognised at first sight. Lindley wrongly places here *R. cuspidata*, Bieb., and *R. pulverulenta*, Bieb., and also makes a blunder in admitting under the Rubiginosæ, *R. Montezuma*, Humb. and Bonp., which has *leaves glabrous on both sides!* ix. Caninæ. "Prickles equal, recurved, leaves oval without glands, serrations convergent, sepals caducous, disk fleshy." This section presents some confusion in the grouping of the species admitted by Lindley. Of the nine species comprised in this section, only two are European, *R. canina*, L., and *R. rubrifolia*, Vill. But *R. indica*, L., *R. microphylla*, Roxb., and *R. chinensis*, Jacq., are surely strangely placed here. x. Systylæ. "Styles united into a column." A very natural section. xi. Banksianæ only includes species foreign to Europe, and included in the section *Chinenses* of the *Prodromus* of De Candolle.

(To be continued.)

(6) As I am only considering European species, and principally those of France, I pass over *exotic species in silence.*

Digitized by Google

ON THE BOTANY OF MALHAM.

By L. C. Miall, Esq.

Part III.

Filices.

In this Order I have for the most part followed Mr. Moore's Handbook of British Ferns, 3rd edition, 1857. A MS. list, obligingly furnished me by Mr. T. Stansfield, of Todmorden, for the West-Riding Flora, is frequently referred to. Several varieties and sub-varieties are given in this catalogue which I do not regard as either important or permanent. In the present unsettled state of British Pteridology it seems best to record everything, and leave to subsequent consideration the determination and definition of species. We must remember that the value of a character, whether in ferns or other groups of natural objects, is often quite independent of physiological importance, and depends primarily upon its permanence and constant association with other marks.

Polypodium Dryopteris, L. (*Ctenopteris*, Newm.) Woods around Malham! Widely distributed over the Yorkshire hills. 54.

P. Robertianum, Hoffm. (*P. calcareum*, Sm., *Gymnocarpium*, Newm.) Above Malham Cove! Gordale! Scar above Malham Tarn, Dr. Windsor. This last habitat implies a height of at least 400 yards. Not uncommon on rocks and walls throughout the whole limestone district of Craven. 15.

Polystichum Lonchitis, Roth. (*Polypodium*, L., *Aspidium*, Sm.) In several long known stations at a height of more than 1500 feet, but judiciously concealed to prevent extirpation. Perhaps no fern is more eagerly sought by collectors, and few seem to be less thoroughly known by them. I believe that for every plant of *P. Lonchitis* ever found on the Craven hills, a dozen are so labelled in herbaria. Many of these were shown or sent to me while preparing the Flora of the West-Riding, and proved to be immature forms of *P. aculeatum*, (sometimes of *P. angulare*.) I understand that such plants have been sold by the guides of North Wales for the true *Lonchitis*. Of late years large numbers of plants were distributed from a supposed new Yorkshire station for this fern, and, for all I know, they are still highly esteemed. I have seen some of these, and every one belonged to the *lobatum* form of *P. aculeatum*. 14.

Digitized by Google

P. aculeatum, Roth. (*Polypodium*, L., *Aspidium*, Sm.) Dr. Carrington found the variety *lonchitidioides*, M.,* on Malham Moor. After cultivating it for some years I have no doubt whatever that its peculiarities are variable; I believe they are ultimately evanescent.

Lastrea montana, Moore. (*L. Oreopteris*, Bory, *Aspidium*, Sm., *Polypodium Thelypteris*, Huds., *Hemestheum*, Newm.) Not uncommon up to about 400 yards! 80.

L. Filix-mas, Presl. (*Polypodium*, L.) Mr. T. Stansfield mentions a variety *ramosum* (*sic*) found on Malham Moor, by Mr. A. Stansfield.

L. rigida, Presl. (*Lophodium*, Newm.) Malham Moor, J. Nowell. 3.

L. dilatata, Presl. The var. *nana* found long ago a few miles off, by Mr. Tatham, may be expected at Malham, though I cannot find that it has yet been seen there.

Var. *collina*, (Newm.) Not uncommon on the scars about Malham.

Asplenium viride, Huds. (*A. Trichomanes ramosum*, L.) Rocks and walls about Malham, frequent! A common fern on the Craven limestone. In the adjoining valley of Wharfe this fern is still oftener seen than in Airedale and Ribblesdale. The crevices of the limestone wall, on the left hand of the little road from Kilnsey to Arncliffe, contain multitudes of plants, together with *A. Trichomanes*, *A. Ruta-muraria*, and *Cystopteris fragilis*. 25.

Var. *multifidum*, M. Above Malham Cove, very plentiful, T. Stansfield!

A. Trichomanes, L. This fern is perhaps the very commonest of all in the neighbourhood of Malham. 81.

In 1863 I found two or three plants on the Kilnsey side of Malham Moor, which are authenticated as var. *incisum*. This tolerably distinct variety is not so rare as the books give it; at least several new stations are being found every year.

Var. *subæquale*, M. About Malham, A. Stansfield.

* A singularly barbarous and unpleasing name, which is continually mispronounced, and which few printers will spell correctly. As an affair of Greek, *lonchiteides* (or even *ides*) would be better, besides being more easily written and read. I mean always to spell it so in future. *Selaginoides*, *ornithopodioides*, *hieracioides*, *amygdaloides*, and a crowd of others are equally wrong and want altering. It may be as well to remind the makers of specific names that the Greeks, whom they profess to follow, added εἰδης (*eides*, and not *oides*) to the root of the word. I shall perhaps have something to say on this and other points of botanical nomenclature by and by.

Digitized by Google

A. Ruta-muraria, L. (*Amesium*, Newm.) The var. *cuneatum*, which is tolerably common on the limestone rocks of Craven, is the plant which has been repeatedly quoted as *A. germanicum*, a species not found in Yorkshire.

Var. *elatum*, Lang. Ayrton, near Malham, T. Stansfield.

Scolopendrium vulgare, Sm. (*Phyllitis Scolopendrium*, Newm.)

Var. *polyschides*,* Gray. Near Malham, A. Stansfield.

Var. *multifidum*, M. Several forms occur around Malham.

Var. *sinuatum*, M. Malham, A. Stansfield.

Var. *transverso-lobatum*. Gordale Scar, A. Stansfield.

Ceterach officinarum, Willd. (*Asplenium Ceterach*, L., *Scolopendrium*, Sm., *Grammitis*, Swartz, *Notolepum*, Newm.) Rocks on the East of Malham Tarn, Dr. Windsor. 55.

Cystopteris fragilis, Bernh. (*Polypodium*, L.) Common on rocks and walls. 56.

Var. *angustata*, Sm. Malham Moor, towards Kilnsey!

Var. *dentata*, Sm. Not uncommon!

Botrychium Lunaria, Swartz. (*Osmunda*, L.) Reported from Malham, but I do not remember the authority. 78.

Lycopodiaceæ.

Lycopodium clavatum, L. Malham Moor! 62.

L. Selago, L. The common Club-Moss of Malham! 62.

L. selagineides, L. Malham Moor, A. Stansfield! On the lower side of Malham Tarn! C. Deighton. Gordale, Dr. Carrington. 42.

Equisetaceæ.

Equisetum hyemale, L. Stream from Malham Cove, Dr. Carrington. 32.

Characeæ.

Chara vulgaris, L.? Malham Tarn, Dr. Carrington. Stream from Malham Cove! id.

C. hispida, L. Pools south of Malham, J. Nowell. Malham Tarn, Dr. Carrington.

C. aspera, W. With the last, and in streams at Kirby Malham, Dr. Carrington.

* Pronounce *polýshĭdēs*, not *polyshídes*, as is common.

Digitized by Google

Reports of Societies.

Society of Amateur Botanists.—The annual meeting of this Society was held on the 23rd ult., and was well attended. The greater portion of the evening was occupied in hearing the president's address, an abstract of which, as showing the present state of the Society, may not be uninteresting. In opening his address, the president observed that the Society had, during the past year, performed in a satisfactory manner the work which it had laid out for itself. He thought that the best way of rendering an account of the Society's proceedings would be to follow the order of subjects set forth in the prospectus. *Excursions* had taken place on Saturday afternoons, often once a fortnight, but had not been so numerously attended as might have been wished. He thought that this was caused mainly by a want of enthusiasm among the members. The annual excursion to Darenth Wood was but thinly attended, and nothing of much consequence was then observed: this might, perhaps, be partially attributed to the excessive dryness of the summer. *Exchange of Plants* had been successfully carried on among the members themselves; but at present the Society had not sufficient space at its command to enable it to keep specimens for a more extensive system of exchange. The *Papers* read before the Society during the past year had been of greater interest and more variety than in the preceding: among them were some of great value, as instances of which he need only refer to those on *Euphorbia amygdaloides*, Cruciferous flowers, Orchids, Abnormal Developments, &c. The *Herbarium* was now fairly established, and had acquired, during the past year, a fasciculus of Leefe's *Salices*, Bloxam's *Rubi*, and Mosses from the herbarium of the late A. O. Black; with various other contributions from members. The greatest difficulty to contend with was want of space: and on this account it was not to be regretted that the Carpological collection was still in abeyance. After a few other remarks it was proposed that a Council should be formed to execute the business of the Society during the coming year; and the president and other officers were unanimously re-elected. The Financial statement of the treasurer shows a considerable balance in hand; and altogether the Society may be considered as being in a flourishing condition.

Leeds Naturalists' Society.—A Plea for Little Birds.—At the December meeting of this Society, Mr. Dixon, secretary to the Leeds General Infirmary, read a very interesting paper bearing the above title. We are all, said Mr. Dixon, fond of little

Digitized by Google

birds in a greater or less degree, some of one kind, some of another, and the sympathy dates back to the earliest days of childhood—that bright and sunny time when our little guileless hearts were brimful of faith and love. Would that the kindly sympathies, the simple faith, the good seed thus planted in the young heart, did always fall upon good ground to spring forth and blossom, and bear fruit in a riper age—would that the fine edge of such heaven-born love could never be doomed to be turned and blunted by the briars and thorns, the cankers and cares, that beset the pathway of a maturer life. The robin redbreast holds so conspicuous a place in juvenile literature that it is no wonder he should be generally the first bird to engraft himself in our sympathy, nor does the kindly feeling thus engendered suffer much diminution in after years. Our little red-breasted friend might know that the world had made up its mind to entertain a generally favourable opinion of him through evil report and good report, and has accordingly grown somewhat bold and impudent by the knowledge. He hops and perks about our spade as we turn up the mellow soil as though the work was going on for his special benefit, though much to the disadvantage of many poor wriggling worms—he presents himself like a duly licensed pensioner on the snow-covered window-sill confident of relief—he will even adventure himself beyond the threshhold sure of a welcome more hearty than many a poor relation would get who dared "just to drop in" in the same familiar way; he defieth both wind and weather and whistles his cheery song while the heavy raindrops beat time on the window pane as the bitter wind howls about the old homestead or moans a requiem for the falling leaves. The times are, however, somewhat perilous for those little birds that have not been so highly favoured as Cock Robin; and sparrow clubs, wise churchwardens, the squire's gamekeeper, and my lady's gardener are telling sad stories about them. Nearly the whole feathered catalogue are set down as arrant thieves, poachers, or good-for-nothings. A little blackbird writing to *The Times* complains that he has been accused of stealing *all* the cherries in a certain garden. He denies the accusation, solemnly protests his innocence, and recommends "my lady" to try a change of gardeners, confident that the result will tend to his acquittal. That letter is very significant and the little birds may take some courage. But what is a sparrow club? Let the *Wiltshire Mirror* answer the question:—The annual account of the Monkton and Brixton Deverill Spar-

Digitized by Google

row Club gives, killed 1536 hard billed birds, and 1464 sparrows, or a total of 3,000 amongst six members. Mr. Rawlings killed the largest number, and took the first prize; Mr. T. Parham the second." A neighbouring parish makes an annual return of 3,500 sparrows, trapped, shot, and poisoned, at a cost of fifteen pounds, or a little above one penny each. Such is a sparrow club. The wise churchwardens of many rural parishes still offer "head money" for birds: sparrows, finches, &c., are purchased at a halfpenny each; blackbirds, thrushes, &c., at a penny each. One old gentleman, during his term of office had expended a very handsome sum upon this kind of game, much larger than any one of the surrounding parishes. There was a "jolly row" about it at the vestey meeting, for the upshot of the matter was that after paying for his birds he somewhat carelessly consigned them to a neighbouring ash-pit—this was soon found out by his juvenile sportsmen, and the young rogues very frequently sold the game three times over before their "little game" was found out. But it is time for us to ask in all sober earnestness what can be done to stop the senseless and wanton destruction of our little birds which is annually going on? Much has been written and said upon the subject, but the occasion calls for more, and he who but collects and reiterates what has been well said before does the feathered estate good service. Here is a picture from the south of England, drawn some two or three years back:—"When the potato famine comes we speak of fortitude and patience, and try to keep up one another's cheerfulness and resignation; but how will it be with us when we have brought on ourselves a worse dearth than the potato failure by this folly of destroying the creatures which preserve our crops from insect plagues? We should remember this now, when we are hearing every day of the plague of insects on the one hand, and of the destruction of small birds on the other. What is the actual state of things with us? In the early spring boys were birdnesting all over the country. In a multitude of townships there is a standing offer of rewards for birds' eggs; and thousands of dozens of eggs have this spring been paid for within an area of two or three parishes. Where no such inducement exists there has been the same plunder; and long rows of speckled eggs are hung in cottage windows, and over the fireplaces under the approving eye of the farmer, if not of the curate and the squire. As the season advanced, and the bloom of our fruit trees afforded as fine a promise of

Digitized by Google

fruit as ever was seen in this country, the war against the small birds became very animated, not only have the guns been heard popping in many country parishes, but men have shown themselves in markets and fairs, all hung over with strings of dead finches, and robins, and thrushes, and sparrows, as an advertisement in their line of business. Members of sparrow clubs have met, and awarded prizes, and dined, and drunk destruction to the order of birds. One prize winner, the other day, boasted of having killed 1,860 sparrows in the course of the year. A lady, meantime, had at one stroke killed with strychnine 800 small birds in her garden: and if one owner of a garden has done such a thing, how many more may have lessened the number of our winged friends? The discovery of the efficacy of poisoned grain in killing off the birds has wrought prodigiously. One rookery after another has gone to destruction—the birds dropping in their flight, and lying dead all over the lawns and fields, while their young are starving in the nests. There has been silence in many lanes and copses formerly all alive with songsters; and travelled men have observed, in some parts of the country, that it was becoming almost like France for the scarcity of birds. This is a part of the picture of this year; but it is not the whole. In the same districts there are now scores of old women and boys employed in trying to save the fruit from the caterpillars. There are more weeders than ever in the fields and gardens, because the weeds never were so rampant, country gentlemen and ladies are declaring that they must give up gardening, on account of the overwhelming increase of the wireworm and other vermin. The mice devoured the bulbs so as to spoil their spring show of flowers: and now between the wireworm, aphides, grubs, caterpillars, and the prospect of wasps, there is little encouragement to gardeners. There never was anything like this plague of insects in former years. The farmer smiles grimly at those distresses of the gentry, for what are they compared with his? If they would look at the white-worm, and the wireworm, and the fly (as it will be presently) in the fields, they would be ashamed of complaining of injury to mere flowers and fruit. His prospect is too like that of the French farmers, when the practice of killing off the birds brought three bad harvests in succession (1853-1856). In one of those three years the wire-worm destroyed, in one department alone, £160,000 of corn; and at that rate we shall have to pay, very soon, if we allow ignorant men, and ladies, and boys, to destroy the natural check upon

Digitized by Google

insect ravages." Mr. Dixon next referred to the result of certain inquiries in France as to the great injuries which had been done to agricultural produce in France by insects, and the steps which had been taken for the encouragement of small birds for the prevention of such insect devastation. He also quoted the opinion of Mr. Walter, M.P., and several other persons in favour of the preservation of small birds, especially noticing the sparrow. He concluded by saying, Let us hope that the arguments in favour of birds will have removed this error, and that the question between man and birds will have reduced itself to whether the balance of good is in favour of the latter or against them. It would be idle to assert that birds consume nothing which, but for them, we might consume ourselves. They feed in part at our expense. They destroy the insects that infest our gardens when they can find any; and when the insects are gone, they search for other food. The first is their labour, the second is their wages. And is not the workman worthy of his hire? The man who grudges a bird a little seed or fruit, might as well begrudge his weekly pay to the labourer. We repeat it, then, let us look at birds as skilful workmen, and the fruit or seed which they eat as the coin in which they are paid their wages. Every day's experience tells us that birds are among the most efficient instruments of Providence for destroying the vermin that would otherwise overrun us. And people may rely upon it that they cannot more effectually encourage the ravages of those insidious foes than by waging war upon the creatures which naturally feed upon them.

Observations.

Habits of the Cuckoo in Confinement.—I have had a Cuckoo about 18 months, which was found in a nest on Clifton Moss, by a man who was mowing, so I infer that it was hatched in a titlark's nest. It is a voracious and not a very clean bird, so we keep it in a cage that formerly contained a parrot which suits its claws very well, and we feed it on hard-boiled eggs, bread and milk, lean meat, with the larvæ of wasps, and caterpillars when we can obtain them. About the end of last July but one it became very restless, particularly at night, beating its wings about the cage, and hurting itself very much, but as the time for its migration passed away it began to know us better, becoming more reconciled: and when winter drew near it gradually lost most of its feathers, but without

Digitized by Google

acquiring any fresh ones, and remaining through the long cold winter half naked; if it had not been that my wife covered its cage with a shawl it would have died with the cold. When spring came its feathers grew and it presented a more respectable appearance. At present it is rather ragged, but not to be compared with what it was last winter. A question arises from the above—Does the Cuckoo acquire its new feathers *before* or *after* its departure from this country? I am inclined to the latter opinion as it would not have time to acquire them here its stay is so short. It is an affectionate bird and not so deficient in intelligence as some persons have written; for instance, it knows when a knife or the meat is brought on the table, and if we are feeding the other birds it is quite anxious till it gets some food itself. It can also distinguish between my wife and myself, paying the most attention to her: it is generally very quiet, sitting on its perch without stirring for some time together, and if we take it out of the cage and put it before the fire it enjoys it exceedingly. It has two remarkable peculiarities, viz.: it very seldom drinks, and I have never yet seen it asleep, sometimes I have looked under the shawl when all has been quiet, expecting to catch it napping, but there it was with its great round eyes wide open and looking me full in the face. It has never sung and its only note so far is a kind of squeak something like that of a young magpie.—PERCY HEAVISIDE.

Dasypolia Templi—Perhaps the disciples of the net and the pin may be a little gladdened to know that some of our rarer Noctuæ, are at least occasionally, to be met with not very far from home. Among these *Dasypolia Templi* may be enumerated. Now Mr. Templi, and his good lady likewise, are a little queer in their own way, but this it is said is natural to people of the higher nature, so if this be the case there is no ground for wonder, for though like other beings they occupy a dwelling place, it is situated in somewhat an odd locality. I have also read that there is no accounting for people's tastes, and so with our Noctua—for as its name imports, it has to do with the stones, or, a part for the whole, will bring us from stones to buildings, among both which the moth is at ease. Whether it follows therefore the trade of the mason, or aspires to the profession of the priest, I cannot quite divine, for I find it both in the quarry and the church. But apart from this, a two hours' hunt for *D. Templi* is generally no joke, but on the contrary a matter of real labour, and has often called to my mind "the

Digitized by Google

seeking for a needle in the bottle of hay." For though the result when accomplished is of a more pleasing kind—namely the bagging the game—you are in utter uncertainty as to when "the find" may be, until the insect is verily in full view: and should it happen that a dozen tons of stones are turned over before the lucky moment arrives, the Entomologist must not give up the search hopelessly—patience and perseverance will be well rewarded in the end. Finally I have to observe, for the information of our Entomological friends in Yorkshire and elsewhere, I believe that where there are quarries, especially in high localities, *D. Templi* may be found from the 1st of October for at least two months. Turn over every stone carefully, examining the under side and the ends, until you are favoured with the sight of *D. Templi*, just as he lives at home. One introduction will reveal to you nearly all you need to know, at least for general purposes. The larva is an internal feeder from May to August upon the various Spondylia, and I presume other plants with pithy roots and stems. I hope to be able to take some little trouble this coming spring to prove this latter (pithy roots and stems) which, if successful, shall be in due course made known. Any further information that I can give for the pleasure or enlightenment of others, who dare venture a pioneering, will be gladly supplied on application.—J. Johnson, Denby Parsonage, Dec., 1864.

Dasypolia Templi.—During the two last months of November and December, I have met with specimens of this interesting insect, chiefly females, somewhat abundantly in this neighbourhood. After diligent search in various places, the insect was discovered in its usual habitats, among the loose stones of quarries, under the same by the roadside, and in heaps of stones in different situations, but for the most part in high localities. As my personal acquaintance with *D. Templi* is so recent and imperfect, I am not able to add anything respecting its habits that may not be already known to most readers of "The Naturalist."—J. Collins, Shepley Parsonage, Huddersfield, Jan. 2nd, 1865.

The abundance of Larvæ in 1864.—This has been a very productive year for insects of all kinds. Larvæ have been swarming on almost every tree and bush. The jet black caterpillars of *V. Io* and those of *V. Urticæ* might have been swept off by hundreds from the nettles, and every gardener can testify to the superabundance of those belonging to *Brassicæ* and *Rapæ*. The hawthorn hedges and spindle trees have been covered with hundreds of hammocks

Digitized by Google

containing the spotted larvæ of the small ermines; and the beautiful caterpillars of the Mullein shark moth have been found of very large size. I have gathered hosts of those belonging to *P. bucephala* from oak, elm, willow, beech (purple variety as well), and lime. Seventeen full grown ones I carried home on one small branch of a lime tree. *A. atropos* and *S. Ligustri* have been more plentiful this year than before. Apropos of *atropos*, the caterpillar made a sound like the tick of a watch.

Hy. Ullyett, High Wycombe.

Winter Rambles in the Isle of Wight.

January 18th, 1864.—The upper half of the Island is chiefly of the Eocene formation, a belt of chalk, that extends from the Culver Cliffs to the Needles, severing it from the Greensand and Gault of the south. The Wealden clay occupies the south-west, and is rich in fossil remains. Our starting point was Ryde, whence we took the direction of Shanklin and the Undercliff to Ventnor and St. Laurence, Freshwater and the Needles. At Brading we noticed in the hedge-rows the brilliant orange seeds of the Gladwyn Iris, *(Iris fœtidissima)* still clustering within the widely spreading valves of the capsule. This Iris is widely spread over the Island. The Butcher's Broom *(Ruscus aculeatus)* was plentiful along the sea-side footpath between Sandown and Shanklin, and in flower. It is not unusual to meet with both flower and fruit on this plant at Christmas. The fruit is of the size and colour of a cherry. The thrushes were singing merrily at Shanklin Chine thus early in the year; and the celandines were wide open on sheltered hedge-banks. At Bonchurch, a mile from Ventnor, we were surprised with the luxuriance of the evergreen vegetation. The Chinese Privet, (*Ligustrum lucidum*) in Captain Huish's pretty grounds, the beautifully glossy foliage of which is the great ornament to Bonchurch Pond in the winter, grows here to the height of twenty feet, and had been quite covered with blossoms. A magnificient heath, *(Erica arborea)* a veritable tree in growth, since it attained the height of twelve or fifteen feet, was literally loaded with white flowers, which are as fragrant as they are beautiful. This tree-heath is a native of the shores of the Mediterranean. Here too, in the open garden, I saw yellow crocuses in bloom, and snowdrops. At Ventnor the scarlet geraniums, which are trained up the verandahs facing the sea, were still in flower; a slight protection of canvas covers the lower part of the stem. I gathered the shining black berries of the madder *(Rubia peregrina)* for the first time at Ventnor. I was

Digitized by Google

glad to see its fruit so abundant in the hedges, as in other parts it is only sparingly matured. The leaves and berries are certainly a great ornament to the bare hawthorn hedges. On approaching St. Laurence, in the south of the Island, I gathered a cowslip, (*Primula veris*) in flower, and saw others in bud. Here too the tamarisk, (*Tamarix Gallica*) with boles of tree-like growth, was still lingering in bud. The foliage of this shrub is exceedingly light and feathery. I gathered quite a spring bouquet of flowers in one sunny nook; periwinkles, sweet coltsfoot, tamarisk, snowdrops—all contributed to my store. As we approached the Sandrock Hotel the tufts of snowdrops in the plantations were in abundance. The Missel thrush was shouting his merry song, which I always love, though it may be rather monotonous! I always think he sings in a key intermediate between the blackbird and thrush. Black Gang Chine gave us some Ammonites and sundry other fossils characteristic of the greensand formation. Near Kingston I saw the flowers of the Stitchwort, (*Stellaria Holostea*) notwithstanding the late intense frosts. We were pleased with the noble myrtles covering the cottages at Mottestone, and still in bud, though they had suffered from the weather. The scarlet peziza-cup (*Peziza coccinea*) was growing on moss-covered sticks, and gave beauty even to death and decay. Another Peziza, (*P. scutellata*) with its convex orange thallus and fringe of black, was growing on the ground, and, though smaller, was nearly as beautiful as its more pretending neighbour the dryad's-cup, as it is sometimes called. We were now approaching Alum Bay, and were charmed with the well defined belts of colour of its rocks, which glistened in the sun like stripes in some gay riband. We procured several fossil shells from the chalk, such as *Ditrupa*, *Chenopsis*, *Cerithium*, and *Planorbis*. Impressions of tropical leaves on pipe-clay were exceedingly vivid, the veins and articulations being distinctly defined, as though the cast had only been taken a few days previously! We saw a fine specimen of the Goosander, (*Mergus merganser*) that had been lately shot at the Needles, doubtless a passing visitor from the Arctic regions.—PETER INCHBALD, Storthes Hall, January 2nd, 1865.

Exchange.

Lepidoptera.—In my offer for Exchange in the last number of "The Naturalist," an error has been made by putting my address Barlby Bank, Sheffield, instead of Barlby Bank, Selby.—RICHARD HEBSON.

Digitized by Google

Original Articles.

NOTES ON BRITISH BIRDS.

By the Rev. George Jeans.

[*Continued from page* 260.]

Starling.—This bird brings out three families in the year so far north as Tetney. A pair did so for seven years, forsaking the place (which was purposely constructed for them) in 1842.

Missel Thrush.—Is quite as predatory as the shrike, small birds being indeed a regular part of its diet. On Feb. 11, 1840, three missel thrushes, two cocks and one hen, were on the wing about my house at Tetney for some time; the males singing, apparently in rivalry, while in the air.

Fieldfare.—A large flock were together late in May, 1840, at Tetney, and a pupil, F. Holt, shot at them. It is curious that of the thrush tribe the fieldfare is reckoned a delicacy in North and East Germany, the Redwing in Suabia, the song thrush or Lijster in Holland, where extensive plantations are formed and laid out for their capture as a commercial speculation. The blackbird, or Dominee (=parson) as the Dutch in derision call him, is reckoned inferior for the table in all. Whereas with us the blackbird is rather the best, and the fieldfare certainly the worst. The fieldfare roosts on the ground, and generally by the side of hedges.

Blackbird.—The late Mrs. Carpenter, sister of the Bishop of Norwich (Stanley), had among her feathered pets at Hawke House, Sunbury, a blackbird, so tame as to come at her call and settle on her hand, even while I was walking with her.

Thrush.—The late Colonel Stapleton, of Thorpe Sea House, near Egham, who never would permit a nesting bird to be disturbed on his premises, whatever the inconvenience to himself,—of which therefore some amusing instances occurred,—once showed me a thrush on her nest in the porch over the kitchen door. She resented his indelicacy with great anger, but it never occurred to her to leave her charge because of the interruption of a stranger.

Ring Ouzel.—I doubt if "mountain" be a characteristic resort of this species. The first I ever shot or saw was in the margin between the high cultivated lands of Rowner and the shingle of Brown Down, where Gomer

Digitized by Google

Fort now stands, near Gosport. At Tetney they were common in April and October for about a fortnight at each season, and seemed very much at home in the marsh holts. Their flight is very discernible from that of the blackbird at first sight, though performed by the same wing-motions. But there is more of power and decision in it. And they are fond of rising by small gyrations to a considerable height, and then going straight away.

Robin.—The Misses Gilchrist at Sunbury had a tame robin, doubtless a female, which spent all its life with them, using the house as a spaniel would; it was rarely absent from the breakfast table, and accompanied them in their walks, perching on the hand at call. It died, an old bird, on the night of Murphy's frost, which it was extremely unwilling to face instead of the warm fireside.

Whinchat.—About Egham is called the Utick from its note. It is there as it is here and at Tetney, the commoner species. It came to Alford early this year, April 11. The wheatear builds here, as it did at Tetney. At the latter place I have seen five or six pairs at the breeding season.

Nightingale.—I heard one in 1854 or 1855 at Claxby, and to make sure got out of the carriage and came close to it. A servant was also present who was familiar with them in the south, and he was also sure. I have never heard one here since. But one was heard this year in Long Sutton by the rector, E. L. Bennett, whose early life was spent in their chief resort, Thorpe, near Egham.

Goldcrest.—Has been seen at Tetney and also here at Alford.

Stockdove.—The woods near Beverley have them in numbers. I have seen them in Grainsby, and I shot one in Tetney. I saw one the other day near Peterborough.

Turtle Dove.—Is common in Surrey, so much so as about Guildford to be made a substantive article of sport. It builds at Sunbury near houses. At Egham I have shot several of an evening.

Quail.—Nested in Tetney in 1853. About 1836, in the autumn, a labouring man of the name of Phillipson, shot sixteen at a shot on the shore, they had evidently just crossed the sea.

Little Bustard.—One was shot in a field half-a-mile from my house, in the parish of Bilsby, in the winter of 1855. It was stuffed by a man in Alford, and I wanted to procure it for the Lynn Museum, but the owner would not part with it.

Digitized by Google

PRATINCOLE.—One was *said* to have been seen at Tetney in the winter of 1840, by a pupil of mine, F. Holt, but I cannot answer for it. His description answered to the habits of the bird.

TURNSTONE.—I saw a pair at Cleethorpe in the spring of 1853. They were on the shore by the cliff, and my impression at the time was that they had paired but without meaning to nest there.

BITTERN.—I have met with this bird at Sunbury, on the Thames (Middlesex); at Egham, Surrey; where one shot by a tailor named Weeks split open a bargeman's head who tried to get it for him; and probably if the bargeman had not slipped on the ice and stumbled at the moment, the beak of the bird would have gone into his eye and perhaps pierced the brain and killed him. At Marshchapel (near Tetney) a man shot one as it was sitting on the sail of a windmill. Occurs also at Tetney.

CURLEW.—Breeds everywhere on the Lincolnshire coast. I have had the young brought me at Tetney. I have seen them at Mablethorpe, and they are now breeding at Wainfleet.

WHIMBREL.—This bird is called Titterel (from its note) all along the south coast, from Sussex to Devonshire.

REDSHANK.—Four pairs used regularly to breed at Tetney, in one marsh.

WOOD SANDPIPER.—Two pairs used to build at Tetney; where I have shot three of the birds. A pair used to breed here at Alford when I first came, nine years ago, but I have not seen them of late years. In both places they rather affected the shelter of the low coppices where the stream ran through them.

GREENSHANK.—I shot one about 1841 which is now in the possession of R. Thorold, Esq., of Wulsby Hall.

RUFF.—I never but once saw these birds in Lincolnshire, and that was in 1853, when I saw several flocks in the autumn.

BROWN SNIPE.—When a boy I three times tried to shoot one on the shingle of Hurst Castle but the flint gun missed fire each time, when the Rev. John Scobell (now prebendary of Chichester) came up and shot it over my shoulder to my intense disgust. My pupil, F. Holt, in returning from Holland in the "Batavier" in 1839 caught one that flew on to the deck.

DUNLIN.—Is called Summer Snipe all up the Thames, I have shot them in the summer, at Sunbury, Egham, Windsor, Oxford, &c.

(To be Continued.)

Digitized by Google

OBSERVATIONS ON THE DIFFERENT METHODS PROPOSED FOR THE CLASSIFICATION OF THE SPECIES OF THE GENUS *ROSA*, *Lin.*

By Mons. Alfred Deseglise.

(Continued from page 276.)

Trattinick, "*Monographia rosacearum*," (1823-4), divides the 234 species described in his monograph into 24 series, in which it is very difficult to know what one is doing, from the confusion which reigns among them, and the secondary characters which he makes use of to establish his series; many of them include but one or two species, or the same series may comprise roses with simple or compound flowers.

Dumortier, "*Notice sur un nouveau genre de plantes : Hulthemia.*" (1824), proposes to class the different species of *Rosa* according to the state of the disk, and divides the Roses of Belgium into four sections, which three years later (1827) he reproduces in his *Florula Belgica*. If his second and fourth sections seem natural on account of the species they include, what shall we say of the third, which contains *R. Gallica*, L., *R. lutea*, Mill., *R. rubiginosa*, L., *R. tomentosa*, Smith, *R. canina*, L., and *R. rubrifolia*, Vill. What analogies can be found to unite in the same group these widely differing species ?

Seringe having been requested in 1827 to describe the species of the genus *Rosa* in the Prodromus of De Candolle, divided the 103 species admitted by him for the whole world into four sections, rejecting the classification he proposed in 1818 in his *Musée Helvetique*, and to which De Candolle was probably a stranger. Section i. Synstylæ established by De Candolle in 1813. ii. Chinenses. The species of this section are foreign to Europe. iii. Cinnamomeæ. "Styli liberi inclusi raro exserti. Sepala integerrima raro subpinnatisecta post anthesim, sæpe conniventia. Stipulæ nullæ cum foliis 1-foliolatis, aut adnæ cum foliis plurijugis. Aculei stipulares gemini raro nulli vel irregulares. Fructus globosi vel globoso-depressi." *Seringe in De C. Prod.* ii. p. 602.[7] It is in this section that Seringe places *R. berberifolia*, Pall., a singular species, which, if it ought not to be separated from the Roses proper, (Dumortier in 1824

(7) This section comprises the Pimpinellifoliæ, Gallicanæ, and Hebecladæ of the *Musée Helvetique*.

Digitized by Google

proposed to make a new génus for it under the name of *Hulthemia*)[8] ought certainly to be included in a separate section, on account of its simple leaves, and want of stipules. The section includes 32 species, of which the following seven only belong to the French Flora;—*R. Gallica*, L., *R. cinnamomea*, L., *R. aristata*, Lapey, *R. fraxinifolia*, Borkh., *R. eglanteria*, L., *R. pimpinellifolia*, L., *R. rubrifolia*, Vill. It is always desirable, as far as possible, to preserve analogies in a series of species, but in this section of Seringe the contrary is the case. iv. CANINÆ. "Styli liberi inclusi vel exserti. Sepala pinnatifida post anthesim deflexa sæpissimæ deciduæ. Fructus ovatus raro globosus. Stipulæ adnatæ cum foliis deciduæ. Aculei sparti non stipulares." *Seringe loc. cit.*, p. 611.[9] This section comprises 39 species, of which nine belong to the Flora of France, viz.:—*R. alpina*, L., *R. canina*, L., *R. saxatilis*, Stev., *R. baltica*, Roth., *R. rubiginosa*, L., *R. tomentosa*, Sm., *R. cuspidata*, Biel., *R. villosa*, L., and *R. alba*, L. *R. alpina* with its stems without prickles and entire calyx divisions, is wrongly placed here, after the characters on which Seringe bases the section: the same may be said of *R. fastigiata*, Bast., which has the styles united in a column, and which Seringe only gives as a variety of *R. canina*, L. *R. Baltica* is nearer *R. cinnamomea* than the Caninæ. This section is very much confused on account of the want of connection amongst the species it comprises, and which seem naturally to refuse so forced and inharmonious a union. Duby, *Botanicon Gallicum* (1828), Lorey and Duret, *Flore de la Coté d'Or* (1831), adopt the sections of Seringe in their divisions of the genus *Rosa*.

WALBROTH, "*Historia Rosarum*" (1828) divides the genus into two sections, after the calyx divisions. 1st *entire*, and 2nd *pinnatifid*. Walbroth only admits for all the roses known at this period, 24 types, under which he places as varieties more than 500 species: his work presents us with only an incoherent assemblage of incongruities and badly applied synonyms. Loiseleur-Deslonchamps *flora gallica* (1828) follows the divisions of Walbroth. These sections, which seem natural at first sight, cannot be admitted, for they present the same anomalies in the connection of the species, as divisions established upon a single character.

REICHENBACH, "*Flora Germanica excursoria*" (1830) makes two grand sections, according to the form of the prickles of the young shoots:—

(8) A genus named in honour of Ch. van Hulthem, founder of the botanical garden at Ghent.

(9) This section includes the Villosæ and Centifoliæ of the *Musée Helvetique*.

Digitized by Google

i. SETIGERÆ. "Turiones recti-aculeati simultaque setigeri." Many of the species which he comprises in this section, are, it seems to me, far from presenting this character. *R. glutinosa*, Sibth., with its pubescent glandulose leaves is scarcely well placed in the same section which includes *R. lutea*, Mil., *R. spinosissima*, L., *R. alpina*, L., *R. sulphurea*, Ait., *R. feroæ*, Ait., and *R. cinnamomea*, L. ii. ACULEOSÆ. "Turiones absque setis aculeati." This section comprises five sub-divisions, established on the form of the prickles and the clothing of the leaves:—*Sub-div.* 1. *Villosæ*. Prickles almost straight, leaves villose: "Aculeis retiusculis, foliolis mollibus." Several species in the first section ought to be placed here. *R. glandulosa*, Bellardi, is wrongly put in this section since its leaves are glabrous! *Sub-div.* 2. *Rubiginosæ*. Prickles recurved, leaves glandulose beneath: "Aculeis recurvatis, foliolis subtus etiam inter venas sparsim glandulosis." A very natural section, but *R. psilophylla*, Rau., having leaves without glands is strangely placed in the *Rubiginosæ*. *Sub-div.* 3. *Caninæ*. Prickles recurved, leaves glandless beneath, except a few on the veins: "Aculeis recurvatis, foliolis subtus (costâ quibusdam excepta) eglandulosis." *R. glandulosa*, Bell., and *R. psilophylla*, Rau., would be here in their true place. *Sub-div.* 4. *Centifoliæ*. "Aculeis difformibus, foliolis regulosis." In the species it includes, this division is much confused, and is not near so good as the two preceding sub-divisions in the connection of its species. Here Reichenbach places *R. marginata*, Walbr., *R. Jundzilliana*, Bess., and *R. coriifolia*, Fries. The two former having the prickles uniform, and leaves with scattered glands beneath, have no affinity with *R. Gallica*, L., and ought to be placed among the *Rubiginosæ*. *R. coriifolia*, Fr., by its habit, prickles, and leaves belongs to the *Caninæ*, and not to the section which includes *R. Gallica*. *Sub-div.* 5. *Nitidæ*. "Foliolis lævissimis nitidis, stylis subcoherentibus quibusdam hologynis." *R. fœtida*, Bast. which is found here, has not the styles united into a column, but free: by its leaves glandulose beneath it is quite a stranger to any species of this sub-division. Reichenbach if he had classed all the species of *Rosa* after the sub-divisions of the section *Aculeosæ* would have caused less interruption in the natural connection of the species. We may say, however, this is one of the best classifications proposed up to now, spite of its imperfections. The prickles of the young stems is too variable a character to be considered of primary value.

KOCH.—*Synopsis Flora Germanicæ et Helveticæ*," (1843), employs four sections for his genus *Rosa*, making use of the position of the carpels

Digitized by Google

as a character of the first order. This character, besides the difficulty of ascertaining it, is far from being unexceptionable : and having endeavoured to make use of it myself for a basis of division in this genus, I was obliged to cast it aside as offering nothing sufficiently positive. i. PIMPINELLIFOLIÆ. "Ovaria in centro calycis breviter stipitata, stipite dimidium ovarium non attingente vel subsessilia. *Flores solitarii, ebracteati, vel bractea unica quæ e folio ad stipulam reducta orta est fulti. Stipuli subconformis.* Trunci juniores aculeatissimi, aculeis gracilibus rectis vel reversis, sed non recurvatis, inæqualibus, intermixtis tenuioribus setulosis." Koch, Syn. p. 246. This section comprises five species :—*R. lutea*, Mil., *R. pimpinellifolia*, L., *R. alpina*, L., *R. gentilis*, Sternb., and *R. reversa*, W. & K. Ought not these five species rather to form three sections? ii. CINNAMOMEÆ. "Ovaria in centro calycis, *breviter stipitata, stipite dimidio ovario breviore.* Flores in apice ramulorum, 3-5, pluresque, corymbosi, omnes, intermedio excepto, bractea fulti ; si flos solitarius ramulum terminat, bractea una alterave cum rudimenta floris secundi vel tertii apparet. *Stipulæ in ramulis florentibus conspicue latiores*, quam in sterilibus. Trunci juniores ut in sectione prima." Koch, loc. cit., p. 248. This section contains five species :—*R. cinnamomea*, L., *R. turbinata*, Ait., *R. rubrifolia*, Vill., *R. glandulosa*, Bell., and *R. spinulifolia*, Dem. What analogy can be found in these five species to unite them in the same section? *R. spinulifolia* with its glandulose leaves, and *R. turbinata* with prickles mixed with glanduliferous setæ, cannot be in their natural place alongside *R. glandulosa*, Bell., and *R. rubrifolia*, Villars. iii. CANINÆ. "*Ovaria in centro calycis, longe stipitate, stipite ovarium æquante.* Flores in apice ramulorum 3-5 pluresve, corymbosi, omnes, intermedio excepto, bractea fulti. Stipulæ ut in sectione præcedente, in foliis superioribus *ramulorum florentium dilatatæ.* Aculei maiores validi." Koch, l. c. p. 250. This section comprises *R. canina*, L., *R. rubiginosa*, L. *R. tomentosa*, Smith, *R. ciliato-petala*, Koch, (non Besser), and *R. systyla*, Bast. Nothing can be better than for the *Caninæ* to form a separate section ; but what can *rubiginosa* have in common with *canina?* Is *R. systyla*, Bast., with its united styles, in its true place here? iv. ROSÆ NOBILES. "Ovaria omnia penitus *sessilia*, stipite destituta. Stipulæ conformes, ramulorum florentium vix latiores ; hinc bracteæ, e stipulis diminutis aphyllis factæ, angustiores." Koch, l. c. p. 274. This section encloses three species :—*R. arvensis*, L., *R. sempervirens*, L., and *R. Gallica*, L. The two first species by their styles, habit, prickles and leaves, are widely removed from *R. Gallica*, L.

Digitized by Google

GRENIER, "*Flore de France,*" (1848), makes two grand sections. i. "Stipules all similar, ovaries sessile, styles free or united." This section is divided into two sub-divisions, by means of the styles—free, or united in a column. ii. "Upper stipules of the floral branches dilated, styles free." This also includes two sub-divisions—ovaries of the centre with short or long pedicels. The above is Koch's method reduced to two great sections. M. Grenier in his "*Catalogue des plantes du Doubs,*" (1843), places the species of *Rosa* in a much more natural order, though not dividing them into sections.

GONNET, "*Flore elementaire de la France,*" (1848), follows the divisions and sub-divisions proposed by Reichenbach.

REUTER, "*Catalogue des environs de Genève,*" ed. 2, (1861), makes five sections, the three first after the persistence or decay of the calyx-segments. M. Reuter neglects other characters which would have facilitated the series; thus had he attended to the prickles, the entire or pinnatifid calyx divisions, to the glabrous, tomentose or glandulose leaves, he would not have admitted species which he ought to have excluded. The fourth section includes roses with glandulose leaves; *R. mariginata*, Walbr., and *R. spinulifolia*, Dem., ought to be in this section and not in the *Alpinæ*; the same with *R. alpestris*, Rapin, which having leaves glabrous above and glandulose beneath, ought not to be placed with the *Tomentosæ*.

From this account of the different methods proposed for establishing sections in the genus *Rosa*, two of the classifications appear to merit attention; those proposed by Lindley in 1820, and by Reichenbach in 1830.[10] These

(10) I have only considered the works of those authors which I have in my possession; my attempts to procure the following monographs having been unsuccessful, viz.:—Afzelius *De Rosis Suecanis*, xi. fasc. Upsal, 1804-13; Andrews *Monograph of the Genus Rosa*, London, 1787; Rœssig *Les Roses*, x. fasc. Leipsick, 1800-17; Woods *Synopsis of the British Species of Rosa*, 1816;* Desportes *Rosetum Gallicum*, Paris, 1828.

* [Since writing this memoir I have received from Mr. J. G. Baker a copy of Woods' Monograph of the Roses of England. Woods published this memoir in 1816, in the 12th vol. of the *Transactions of the Linnean Society*, pp. 159 to 234, a remarkable work for the period! Besides the very careful descriptions, there are numerous observations recorded in the paper, which shew that the author had carefully and attentively studied the roses of his own country. Woods formed a herbarium of 133 specimens of his types, which is now deposited in the rooms of the Linnean Society, at London, where they may be consulted and examined by all who desire to do so. Mr. Baker has been kind enough to record in the margin of the copy he sent me MS. notes relative to the authentic types of Woods, which have enabled me the better to recognise the species of the English Botanist. The

Digitized by Google

very natural sections ought to have been followed by authors, correcting what appeared defective in them, instead of trying to create new classifications, which have none of the value of those proposed by these two illustrious *savans*, who with good reason rejected the divisions of Linneus. If it were desirable to make only *two* grand sections in the genus *Rosa*, they might be established on a single principal character; taken from the form of the styles according to Desvaux; from the leaves glandulose or glandless beneath, after Rau; the entire or pinnatifid calyx divisions, deciduous or persistent, after Walbroth, Loiseleur-Deslonchamps and Reuter; but we must still say that this classification presents many great anomalies, by interrupting in a grievous manner, the series of species which seem to bind themselves together naturally. The prickles, after Reichenbach; the toothing of the leaves after Leman; the form of the disk as proposed by Dumortier; and the carpels used by Koch; do not offer a better division. We may succeed in establishing good sections, when all the species are rigorously described, and known from an organographic and physiological point of view. But who shall pretend to perfection when he attempts to unravel the grand mysteries of nature!

The classification which I propose, is not, I know, more than any other, beyond the reach of criticism; and I must ask my readers to consider it only as a fresh attempt to facilitate the knowledge of our French species. In selecting all that is good from my predecessors, I shall endeavour to avoid errors as much as possible; but, alas! dare I pretend to it? I propose to divide the genus *Rosa* (for our French species) into nine grand sections, which I think are sufficiently natural. After the example of De Candolle, Lindley, Seringe, and a great number of authors, I preserve the section *Systylæ;* a very natural section, which may be easily recognised at first sight, and which includes but a small number of species.

i. Systylæ.—Styles united in a column.

ii. Gallicanæ.—Low shrubs; prickles of *two kinds*, branches more or less covered with slender prickles and glanduliferous setæ; leaves orbicular or oval, more or less *coriaceous*, pale or whitish beneath; exterior calyx divisions pinnatifid, canescent, not persistent on the fruit, styles free or near together, but not united in a column.

little knowledge which I possess of English Roses I owe to Mr. Baker, whose friendship, born under the auspices of botany, remains with me always as a pleasant remembrance.]

Digitized by Google

iii. PIMPINELLIFOLIÆ.—*Under-shrubs*, generally *covered* with *horizontal, slender, straight* prickles; leaves very small, glabrous, coriaceous, rounded or obtuse, somewhat similar to those of *Poterium;* calyx divisions entire, persistent; styles free.

iv. CINNAMOMEÆ.—Shrubs, with branches of a *cinnamon-brown* colour; prickles of the *stems* straight, unequal, subulate and setaceous, *not glandulose*, caducous; *those of the branches* situate at the base of the leaves; calyx divisions entire, persistent; peduncles furnished with *very large bracts*; styles free.

v. ALPINÆ.—Stems *without prickles*, or very rarely armed with setaceous spines; leaves *glabrous;* calyx divisions entire, persistent; styles free.

vi. CANINÆ.—More or less elevated shrubs; prickles *uniform*, scattered, *not* mixed with glanduliferous setæ; leaves glabrous or villose, *never glandulose* beneath, simply or doubly dentate; calyx divisions the *interior entire*, the *exterior pinnatifidi*, deciduous before the fruit ripens—in a few species of this section they are persistent. Styles free, slightly protruded; flowers rose-colour or white.

vii. EGLANTERIÆ.[11]—Leaves slightly pubescent, and *glandulose beneath;* flowers large, of a bright yellow, or reddish-yellow inside; styles free.

viii. RUBIGINOSÆ. Prickles *strong, hooked*, rarely straight, and sometimes degenerating at the summit of the flowering stems, into glanduliferous setæ; leaves *more or less* covered with *viscous glands* beneath, very rarely above; external calyx divisions pinnatifid, deciduous, occasionally persistent; styles free.

ix. TOMENTOSÆ.[12] Prickles *straight or nearly so;* leaves *grey-tomentose* or *softly villose on both sides*, as if felted; peduncles generally all glandulose; calyx divisions persistent or deciduous; styles free.

(To be continued.)

(11) This section ought perhaps to be included in the following one (*Rubiginosæ*) on account of its glandulose leaves. The colour of the petals, and the form of the prickles, ought, however, I think, to establish it as a separate section.

(12) This section includes species with leaves glandulose beneath, and which ought perhaps to be placed in the *Rubiginosæ;* however, the habit of these plants, the clothing of their leaves, and the prickles, are opposed, I think, to this union.

Digitized by Google

Review.

"*The Entomologists Annual for* 1865," By H. T. Stainton, F.L.S., and others. (London, Jno. Van Voorst.)

This yearly record of Entomological discovery has again made its appearance, and we doubt not will prove as welcome as any of its predecessors, although it may not be so rich as some in novelties. The work opens with a short article on Devonshire, by the Editor, Mr. H. T. Stainton, but as he seems to have been unfortunate in his choice of weather for his visits, his experience of that county is somewhat gloomy. This is followed by Translations of two Sketches of Travels in Norway, by Dr. Wocke and Geo. Ritter von Frauenfeld, and then the real object of the Annual is commenced; Mr. W. F. Kirby has a short series of Notes on European Butterflies, which is to be considered as supplementary to his excellent Manual, and in which he corrects some errors into which he had fallen, and adds information since gathered.

The next article is a Synonymic List of British Trichoptera, by Mr. R. M'Lachlan; as this gentleman is engaged on a Monograph of the British Species, which we are glad to hear is in a forward state, he has omitted all mention of the unrecorded species, nevertheless the list will be welcomed by those gentlemen who are working up this interesting order.

The new species of Coleoptera are described by Mr. E. C. Rye, and although that gentleman laments the scarcity of Insects owing to the long continued drought of the past summer, we think the discovery of 28 species new to Britain, a fair average crop of novelties for one season; of these, two are new to science, *Antalia puncticollis*, taken by Mr. D. Sharp, in August, at Rannoch, and described in the Zoologist, p. 8999; and *Ceuthorhynchideus Poweri*, taken by Dr. Power, at Weybridge, in June, and also taken at Silverdale, near Lancaster, by Mr. J. Sidebotham, of Manchester; this species was described by Mr. Rye at p. 137 of the Entomologists' Monthly Magazine.

"It is an ill wind that blows no one luck," and if the past season has been too dry for Coleoptera, Mr. Frederick Smith has found it "in every respect highly favourable to the aculeate Hymenoptera." He records therefore the capture of a considerable number of the rarest species, and the addition of one new one to the British Fauna, *Formica exsecta*, Nyl.; besides this Mr. Smith appends some valuable remarks on the sudden appearance and disappearance of species from certain localities, and points out

Digitized by Google

Bournemouth as a place teeming with many rarities, his captures alone in the month of August numbering no less than 89 species.

There are three articles on the Lepidoptera. Dr. Knaggs furnishes notes on new and rare species, except the Tineina, with some interesting introductory remarks on remarkable varieties captured during the year and other matters. The list of novelties is very meagre, being confined to three, viz. *Nonagria brevilinea*, found by Mr. C. Fenn, at Ranworth, in August; *Eupithecia lariciata*, Freyer; and *E. campanulata*, hypothetically found in the larva state by the Rev. H. Harper Crewe. This latter gentleman furnishes descriptions of the larvæ of five species of Eupithecia, a genus of which he is working out the life history in a most energetic and laudable manner. The Tineina are, of course, left in the hands of Mr. Stainton, who describes two species new to Britain, *Depressaria olerella*, Zeller, captured by Mr. Barratt, at Woolmer Forest, near Hazlemere, and *Gelechia Pinguinella*, Treitschke, taken on the trunks of poplars in the neighbourhood of London. Besides this, the discovery of the larva of *G. Lathyri* having shewn, that that species has been known to us as *G. nigricostella*, it is here placed in its proper place.

Mr. Stainton also furnishes a second interesting article on this same group of insects, and the volume is closed with a review of Mons. Lacordaire's great work, the "Genera des Coléopterès."

Although, on the whole, the number of new species for the past year is very small, we think there is room for congratulation in the importance of some of the observations made upon already known species, and we are of those who think that the elucidation of an *unknown* portion of the life history of a *known* insect is as important as the discovery of a new species. We trust that even if the number of discoveries should year by year grow less, as it may be expected to do, Mr. Stainton will still favour us with his Annual of Entomological news; it may now fairly be reckoned a serial publication, to the advent of which Entomologists look forward as a source of pleasure and profit.

Reports of Societies.

The West-Riding Consolidated Naturalists' Society.—The annual meeting of this union of Yorkshire Naturalists was held at the Royal Hotel, Wakefield, on the 7th of January, Henry Oxley, Esq., President of the Wakefield Society, in the chair. The proceedings were commenced by the chairman adverting to the honor done the Wakefield Society,

Digitized by Google

by so large an attendance of representatives from other towns, and he gave them a most hearty welcome. The Secretary then read the report, in which was contained a congratulation to the members on the satisfactory state of the finances: an additional incorporation of the Clayton-West and Morley societies, so that the "Consolidation" is now represented by the Huddersfield, Halifax, Wakefield, Leeds, Heckmondwike, Norland, Clayton-West, and Morley Societies. During the past year there have been three general, one annual, and four delegate meetings. The Book of Proceedings shows a realization, to a tolerable degree, of the "dissemination of knowledge in the various branches of Local Natural Science, together with the exhibition and exchange of specimens," for which the union was originally established. "The Naturalist, and Journal of the West-Riding Consolidated Naturalists' Society," was begun in May last, and has proved a decided success. Thanks have been voted and tendered to Geo. Busk, Esq., Hon. Sec. of the Linnean Society, and to J. W. Dunning, Esq., Hon. Sec. of the Entomological Society, London, for assistance and encouragement rendered. A list of the societies, patrons, officers, committees, and members of the Consolidation, giving also the study and address of each individual member was published and distributed, and as a means of reference this has proved of great value. The report was then adopted unanimously. Mr. Hepworth, of Wakefield, introduced the question of the desirability of each Society making full local lists of the Natural History specimens found in each neighbourhood, with a view to the ultimate publication of the same, from which could be formed "a Flora and Fauna" of each locality. The prospects and condition of each society was respectively spoken of by the representatives present, showing a general prosperity. A revised list of members for the present year was decided to be published. The meetings for the ensuing year, and the officers were then appointed, Mr. Benjamin Bradley, Sheepridge, near Huddersfield, being unanimously re-elected Secretary. Mr. Schofield exhibited some beautifully mounted botanical specimens. There were also exhibited specimens of Lepidoptera, Shells, &c. The Secretary exhibited the skin of a snake, ten feet in length, from the Cape. A vote of thanks to the Secretary for his services during the past year, and a vote of thanks to the chairman, brought this very interesting meeting to a close.

Digitized by Google

Observations.

Physa hypnorum occasionally carnivorous.—Having collected some specimens of *Physa hypnorum*, and being desirous of keeping them alive, I put them into a glass along with two specimens of *Limnæa auricularia:* looking at them a day or two after I was surprised to find three empty shells of *P. hypnorum*, but could find no trace whatever of their bodies; I immediately blamed the *L. auricularia* for the mischief done and put them into another glass, on looking again three or four days after I found some more shells empty, but this time caught five or six of the real delinquents busily feeding on the dead body of one of their comrades, and one of the empty shells had a rather large hole in the whorl next to the body whorl.—W. Nelson, Freehold-street, Leeds.

Some of the Rarer Moths found at High Wycombe.

Smerinthus ocellatus. Very fine imago taken 1864, in an orchard.

S. Tiliæ. Imago brought to me last year (1863).

Acherontia atropos. There have been five larvæ taken this year from potato grounds, of which I had two very fine ones.

Sphinx convolvuli. Very fine imago taken in 1863, in a garden.

S. ligustri. Larvæ and imagos taken 1864.

Macroglossa stellatarum. Two imagos caught hovering over geraniums in a garden, 1864.

Zeuzera æsculi. Dean Garden Wood.

Cossus ligniperda, (larvæ only from cherry tree). Wycombe Marsh.

Procris statices. Wycombe Marsh.

Ourapteryx sambucata. Four Ashes.

Tephrosia consonaria. Keep Hill.

Metrocampa margaritaria. In the woods.

Geometra papilionaria. Marlow Hill.

Amphydasis betularia. Wycombe Park.

Abraxas ulmata. Downley.

Strenia clathrata. Very widely distributed.—Hy. Ullyett.

Scottish Summits.—No. I.

(Ben Venue.)

July 4th, 1864. Ben Venue, like so many of the Southern Grampians, consists of mica schist, intersected with veins of quartz. Its height is 2388 feet. On the ascent from the Trosachs I first observed the *Alchemilla alpina*, readily distinguished from its sister of the plains by the silky under-coating of the foliage. A tiny willow *(Salix herbacea)* was creeping abundantly among the boulders on the top, and gave evidence of having flowered, though shyly. Its reticulated leaves were blistered by small red galls, each containing the larva of a Tenthredo. This willow is usually indicative of a micaceous soil. The moss that chiefly clothes

Digitized by Google

the summits of the Grampians is *Trichostomum lanuginosum*. I met with it in fine fruit in several of the mountain corries both on Ben Venue and Ben Lomond. The Crowberry (*Empetrum nigrum*), the berries of which are sought after by the Ptarmigan and Black Grouse, was here growing in plenty. It is not uncommon on the moors around Huddersfield. The Cloudberry (*Rubus Chamæmorus*) was abundant in alluvial soils on the mountain sides, though the berries were still green. The beautiful yellow Saxifrage (*Saxifraga aizoides*) was clustering round every spring in company with the Starry Saxifrage, (*S. stellaris*) the latter often growing among tufts of moss. The petals in these species are respectively marked with red and yellow spots. Another of the Saxifrages, (*S. oppositifolia*) with its rich purple flowers, was nearly over, though I gathered several late blooms from sheltered places. Four of the six British Lycopods put in an appearance on the summit of Ben Venue: the least (*L. Selaginoides*) I found growing among *Hypnum* and fruiting plentifully. This species is, I believe, hardly known in the south of our island. The Mountain Sorrel (*Oxyria reniformis*) grew plentifully on the side facing Loch Katrine. I am surprised that this succulent-leaved sorrel is not more frequently seen in our kitchen gardens, as it readily adapts itself to lowland cultivation. The Rose-root (*Radiola rosea*) was growing out of the clefts of the rock. The otto, for which this plant is known, exists in kernels imbedded in the pulpy stem, and the perfume when these are bruised, is very powerful. My attention was first drawn to this circumstance by Mr. Guthrie, the gardener at Fixby Park. On descending I came upon vast tracts of spongy ground covered with the Sweet Gale (*Myrica Gale*). This plant, I learned from an intelligent sheep farmer in the neighbourhood, is very injurious to the young lambs in the spring of the year, inasmuch as astringency is communicated by it to the milk of the ewes, that are apt to feed upon the budding leaves; and mortality not unfrequently prevails in consequence at this season of the year. I noticed a singular little Carex, growing with the Gale, known by the name of *Carex pulicaris*; the fruit thereof is brown and reflexed when ripe, and has some resemblance to a flea, as the name imports.—PETER INCHBALD, Storthes Hall, Jan. 16th, 1865.

*Boletus cyanescens.**—The occurrence of this species during the past autumn appears to me a fact of too much importance to pass unrecorded.

* The substance of a paper read before the Society of Amateur Botanists, (London), October, 1864.

Digitized by Google

Towards the close of September I found three specimens in the neighbourhood of the village of Neatishead, in Norfolk, growing by the roadside at the bottom of a hedge-bank. It should be remembered that this species of *Boletus* has hitherto only found a place in our Flora on the authority of Sibthorpe (Fl. Oxon. 1055), who found it in Magdalen College Walks during the month of September. I am not aware that it has been found in England either before or since; indeed, in "Berkeley's Outlines" it is stated "not found since the time of Sibthorpe." More recently I placed it amongst "Doubtful or extinct species" in my *Index Fungorum*. From the three specimens which I collected I was enabled to note the following particulars. The pileus was at first globose, afterwards convex, of a color so nearly like that of the ordinary uncultivated forms of *Agaricus campestris* that at first I took them for robust young specimens of the "mushroom." The cuticle was to the touch like the softest of French kid leather, dull, with a tendency to darken in color by age. The flesh was compact, brittle, and of a very pure white when broken, gradually, but not so rapidly as in some other species, becoming blue, at first cærulean, deepening into full "cobalt;" at length leaving a carbonaceous stain where it had been of the deepest blue. The stem in all the specimens of a somewhat loose texture, and brittle, not in the least fibrous, snapping readily, but hollow *in none*. In all there was a diminution of diameter upwards and downwards so as to be truly ventricose. Of the same color as the pileus in the upper portion, but dark brown at the base, melting into each other, without any distinct line of separation. The tubes were perfectly free from the stem, short, round, and of a pallid primrose tint. The spores were undoubtedly colorless, twice as long as broad, and sometimes longer, and narrowed towards each extremity. The specimens were found in two localities about a quarter of a mile apart. The soil was gravelly, and in both instances the fungus was growing amongst grass. The above description will be found to agree in the principal features with that given by Bulliard, and I have no doubt of their identity.—M. C. Cooke.

Exchange.

Lepidoptera.—I have the following for exchange:—*S. Tithonus, S. hyperanthus, P. linea, C. diluta, B. perla, C. cubicularis, T. fimbria, N. glareosa, G. Dahlii, A. litura, M. Pisi, A. myrtili, M. Belgiaria, A. chi,* and *L. multistrigaria.*—William Shaw, No. 16, Back Park-street, Newroad End, Leeds.

Digitized by Google

Original Articles.

NOTES ON THE ORNITHOLOGY OF NORFOLK.

By T. E. Gunn, Esq.

Hen Harrier. A mature female was killed at Hickling on the 24th instant. In its stomach were the remains of *Emberiza citrinella.*

Varieties. *Strix flammea.* Two nice varieties of this species have lately been taken in this neighbourhood. The first example, a male, was killed about the 19th of November last; the under parts of its plumage instead of being the natural hue, white, were of a uniform buff colour; the upper parts were marked as usual, only of a somewhat darker tint. The second individual, an adult female, was obtained about the 5th or 6th instant, its plumage being of a similar hue to that of the above example, only of a darker tint. This one has been preserved and is now in our museum. *Fringilla domestica*—a female piebald variety was shot on the 12th ult. at Reedham, its plumage being speckled with small patches of white, a band of white extended from the outer margin of one wing, across its rump to the outer margin of the other. *Scolopax rusticola.* A splendid pied variety, a male specimen was killed at Melton Constable, on the 19th of November. The first three quill feathers in one wing; the first three, and the fifth up to the tenth inclusive, in the other wing were of a pure white, without the slightest indications of any markings whatever; the fourth quill feather in the latter being of its natural colour and markings, with the exception of a small spot of white at its tip; a few white feathers were also scattered over and near the outer margins of its wings. The piebald variety of the Woodcock is indeed of very rare occurrence here, this being only the second instance I have observed during the last six years in the eastern counties; the first, which was also a male example, a sketch of which is given in Young England, vol. iii. page 213, was killed in the neighbourhood of Lowestoft, in Suffolk, on the 18th of March, 1859. *Anas boschas.* I saw a female on the 23rd of November, the plumage, mor particularly about its head, neck, and upper parts, was marked with patches of white. I have in two or three instances met with similar specimens before at this season of the year.

Digitized by Google

Snow Bunting. I have seen but one single individual of this species, which happened to be a male; it was shot out of a small flock at Long Stratton, on the 9th of last month.

Dipper. A male of this species was killed at Buxton on November the 14th, by Mr. Gambling, who resides in that district; he very kindly presented it to the collection in the Norwich Museum. It was preserved by Mr. T. Knights of this city. *Cinclus aquaticus* is rather rare in Norfolk, I have noticed but very few instances of its occurrence here; I remember two examples being taken in the winter of 1859-60, one in this neighbourhood, and the second at Beeston Regis, near Cromer. I have also seen a fine adult specimen which I am informed was taken at the back of the New Mills, Norwich, a few years since.

Quail. On December 7th, a nice male specimen of *Perdix coturnix* was killed on Ranworth broad. Its crop and stomach contained two or three kinds of seeds, with the addition of a few small pebbles in the latter.

Stone Curlew. On the 3rd ult., Mr. Geo. Cooke shot a fine example of this bird, at Great Melton, near Wymondham. I believe the Stone Curlew is becoming rather scarce, as I have noticed but very few instances of its occurrence during the last few years.

Golden Plover. On Tuesday, the 6th instant, three individuals were killed on Upton broad, all were very fat and in good plumage.

Bittern. A mature male of *Ardea stellaris* was killed on the 28th instant, at Burgh, near Yarmouth. In dissecting it, I found its stomach to contain a perch (*Perca fluviatilis*) 7¼ inches in length, it was much bitten and partly decomposed, but not so much so as to prevent me from distinguishing the species; a few pieces of reed were also taken from its stomach, they being most probably swallowed with the fish.

Green Sandpiper. Yesterday a mature female was shot at Langley; in its gizzard were the remains of a few small snails and aquatic insects.

Spotted Rail. I saw one on the 3rd ult. in our fishmarket.

Grey Phalarope. A male killed on the 17th instant, length from tip of beak to end of tail 8⅝ inches, wing from carpal joint to tip 5⅝ inches; beak ⅞ of an inch; iris dark hazel approaching to black.

Wild Fowl. This being so mild a winter at present, wild fowl do not appear to visit us in any very great numbers, I have observed but two very rare birds during the whole of the season. I will, however, just glance over the more particular occurrences. Several individuals of the Wild, or Hooper Swan (*Cygnus musicus*) have been obtained during the

Digitized by Google

past two months, but they appear mostly to be immature specimens. Four or five examples of the Goldeneye Duck (*Anas clangula*),—one, a splendid old male was shot at Reedham about the 24th instant, the remainder were females and immature specimens. I have also seen several good adult birds of the Scaup, Tufted Duck, and other common fowl. An immature male of the Eider Duck (*Anas mollissima*) was killed on Hickling broad, about the 12th of November last, it was in poor condition. This species is of extremely rare occurrence in Norfolk, as very few individuals are ever observed so far south as this county, they are, however, pretty abundant in the north, in Shetland, Iceland, and other northern localities, where during the summer they breed in considerable numbers. An adult male of the Velvet Scoter (*Anas fusca*) was purchased on the 20th instant in our fishmarket; it was apparently killed the previous day, on our coast, and was in poor condition and probably driven to land by stress of weather. Its entire length from beak to tail was 21½ inches; tip to tip of wings 3 feet; wing from carpal joint 11 inches; bill 2½ inches in length, 1⅛ inch broad, nostrils black, tip of a pale reddish colour, sides of upper mandible of a beautiful deep orange, edges black, tip of lower mandible pale orange; inner sides of legs and toes of a reddish orange, the outer sides inclining to a more pinkish hue, as also was the under surface of its toes, membranes black, toes the same; irides pearly white. Two Smews (*Mergus albellus*) were obtained about the 23rd instant, the first was killed at Salthouse, and the second was purchased in our fishmarket; both were females. A few individuals of the Redbreasted Merganser (*Mergus serrator*) have been killed on our broads, being chiefly females and young birds; a nice specimen of the former was killed on the 2nd ult. on the river at the back of Hellesdon mills, about four miles below Norwich. I have also seen three or four individuals of *Mergus merganser;* a female was taken alive at Morton, about a fortnight since, by Mr. Stimpson, farmer, of that parish; he was going over his field one morning when he saw the bird in question sitting on the edge of a knoll next the fence, he set his dog upon it which very soon captured it; the bird had previously received an injury which prevented its escape.

Sclavonian Grebe. Mr. J. Pear, bird stuffer, of this city, received for preservation on the 20th ult., a nice immature bird of this species, it having been killed by a marshman a day or two before on Surlingham broad.

Great Northern Diver. On the 24th instant an immature female

Digitized by Google

was killed on the sea-beach at Wells. It measured 33 inches from tip of beak to tip of tail: wing from carpal joint 14½ inches; bill 4½ inches, the upper mandible projecting $\frac{3}{16}$ of an inch beyond the tip of the lower. The whole of the upper parts of its plumage are of a blackish hue, feathers margined with grey. It was in pretty good plumage, and exceedingly fat. Immature specimens of *Colymbus glacialis* are not very unusual on the Norfolk coast during the winter. I noticed the occurrence of three individuals last winter season; two being obtained at Blakeney, near Wells, and the other at Horeton.

Gulls. I have not seen any rare examples of the *Laridæ* this season, only a few adult birds of *Larus marinus*, and several immature specimens of *Larus argentatus*.

Leach's or Forktailed Petrel. An adult male of this species was picked up dead on the 25th of November last, in the neighbourhood of East Bradenham. In condition it was extremely poor and had apparently been dead several days. From beak to tail, both included, it measured 8 inches; wing from carpal joint 6½ inches, from tip to tip when extended 18 inches. Its head, neck, and back of a sooty black; wing coverts rusty brown; the tertails tipped with white. The tail is forked (hence the name), the feathers of which are black, the two outer ones extending half an inch beyond the tips of the others; upper tail coverts white; breast and belly sooty black; behind its thighs and extending over the sides of its vent is an elongated patch of white; vent, sooty black; beak, black; irides, dark hazel; legs, feet, and toes, black; the former are an inch in length.

Norwich, December 31st, 1864.

OBSERVATIONS ON THE DIFFERENT METHODS PROPOSED FOR THE CLASSIFICATION OF THE SPECIES OF THE GENUS *ROSA*, *Lin.*

By Mons. Alfred Deseglise.

(Continued from page 298.)

The first section may be easily recognized by its styles. The *Gallicanæ* are generally small undershrubs, of 50 centim. to 1 metre (19 to 39 in.)

Digitized by Google

in height, having prickles mixed with glanduliferous setæ, and peduncles always glandulose; it may by these characters be easily distinguished from the *Systylæ*. The *Cinnamomeæ*, from their upright branches and free styles cannot be confounded with the *Systylæ*; whilst their leaves, entire calyx-divisions, the bracts on the peduncles, and their prickles, readily separate the section from the *Gallicanæ*. The *Pimpinellifoliæ*—which are small undershrubs covered with numerous prickles, leaves very small, calyx-divisions entire persistent, and free styles—cannot be confounded with the *Systylæ*. By their habit, the species of this section approach the *Gallicanæ*, from which they differ by their prickles, leaves, and calyx-divisions. The *Alpinæ*, somewhat resembling the *Cinnamomeæ*, are distinguished from it by their unarmed stems, peduncles without bracts, and a habit and aspect different from all the others. The *Caninæ* are ordinarily elevated shrubs, with flexuose branches, bending or straight, prickles uniform, more or less robust, leaves glabrous or villose, but not tomentose as in the *Tomentosæ*, calyx-divisions pinnatifid; by which characters it may easily be distinguished from the *Cinnamomeæ*, *Pimpinellifoliæ*, and *Alpinæ*. The *Eglanteriæ* are recognised by their yellow flowers; a rare colour in the genus *Rosa*, in which white and rose-colour predominate. The *Rubiginosæ*, with leaves always glandulose, bear a character by which they may be at once distinguished from all the other sections. The *Tomentosæ* by their leaves and prickles are easily distinguished from both the *Rubiginosæ* and *Caninæ*.

N.B.—In the following Synopsis the mark * signifies that the species has hitherto only been found in England; † signifies that the species is found both in France and England. The species *without* mark are found in France but *not* in England.

SYNOPSIS SPECIERUM.

Section I.—SYSTYLÆ. Lindley, Monog. p. 111 (1820); Godet, Flore du Jura (1853), p. 204.—Synstylæ. De Cand. Cat. Monsp. (1813), p. 137; Desv. Journ. Bot. (1813), vol ii. p. 112; Seringe in De C. Prod. (1825), vol. ii. p. 597; Dub. Bot. (1828), vol. i. p. 175; Bor. Fl. du Centre de la France (1840), vol. ii. p. 135; Deseg. ess. Monog. in Mem. de la Soc. Acad. de M. & L. (1861), vol. x. p. 49 et extr. p. 9;—Nitidæ. Rchb. fl. excurs. (1830), vol. ii. p. 623 in part;—Nobiles. Koch Syn. (1843), p. 254 in part.

Digitized by Google

a. Leaves persistent.

1 R. sempervirens, L.
2 R. scandens, Mill.
3 R. prostrata, D.C.
4 R. Ruscinonensis, Des. & Gren.

b. Leaves deciduous, calyx-divisions entire or shortly 1-2-pinnatifid, styles close together in a protruding column, equal to or longer than the stamens.

5 R. bibracteata, Bast. †
6 R. conspicua, Bor.
7 R. rusticana, Deseg.
8 R. arvensis, Huds. †
9 R. repens, Scop. †

c Leaves deciduous, exterior calyx-divisions pinnatifid, styles in a column more or less protruded.

10 R. fastigiata, Bast.
11 R. systyla, Bast. †
12 R. leucochroa, Desv.
13 R. stylosa, Desv.

Section II—GALLICANÆ. De Cand; Besser, enumerat. pl. Pod et Vohl. (1822), p. 60; Deseg. l. c. p. 50 and p. 10;—Cinnamomeæ. Seringe l. c. p. 602 in part; Duby l. c. p. 176 in part; Lorey and Duret fl. de la Coté d'Or (1831), vol. i. p. 304, part;—Centifoliæ. Lind. Monog. Trans. De Pronville (1824), p. 66 part; Rchb. l. c. p. 622 part;—Nobiles. Koch l. c. p. 255 part; Reuter Cat. Genève, ed. 2, (1861), p. 73 part;—Diastylæ trib. *dimorphacanthæ*, Godet. l. c.

a. Styles approaching in a villose column, or agglomerated in a bristling column, as long as, or longer than, the stamens.

14 R. hybrida, Schleich.
15 R. arvina, Krock.

b. Styles free, glabrous.

16 R. arenivaga, Deseg.

c. Styles free, bristly.

17 R. geminata, Rau.
18 R. Borœana, Béraud.
19 R. Austriaca, Crantz.
20 R. incarnata, Mill.
21 R. virescens, Deseg.
22 R. sylvatica, Tausch.
23 R. decipiens. Bor.

d. Styles free, woolly.

24 R. Gallica, L.
25 R. Provincialis, Ait.
26 R. pumila, L. pl.
27 R. rivalis, Deseg.

Section III.—PIMPINELLIFOLIÆ. De C. (non Koch); Besser, l. c. p. 60; De Pronville (Lindley) l. c. p. 48 part; Deseg. l. c. p. 51 and p. 11;—Cinnamomeæ. Seringe l. c.; Duby l. c. part; Lorey et Duret l. c. part; Alpinæ. Reuter, l. c. p. 63 part;—Diastylæ trib. *leptacanthæ*, Godet l. c.

Digitized by Google

28 R. Hibernica, Sm. *
29 R. involuta, Sm. *
30 R. rubella, Sm. †
31 R. mitissima, Gmel.
32 R. spinosissima, L. †
33 R. myriacantha, De C.
34 R. Ripartii, Deseg.
35 R. Ozanonii, Deseg.
36 R. spreta, Deseg.
37 R. consimilis, Deseg.

SECTION IV.—CINNAMOMEÆ. De C. (non Koch); Besser l. c.; Seringe l. c. part; De Pronville (Lindley) l. c. p. 32; Lorey et Duret l. c. part; Duby l. c. part; Deseg. l. c. p. 50 and 10;—DIASTYLÆ trib. *dimorphacanthæ*, Godet l. c.

38 R. cinnamomea, L. †
39 R. fraxinifolia, Borkh.
40 R. Baltica, Roth.

SECTION V.—ALPINÆ. Deseg. l. c. pp. 51 and 11;—CANINÆ. Seringe l. c. p. 611 part; Duby l. c. p. 177 part;—PIMPINELLIFOLIÆ. De Pronville (Lindley) l. c. part; Koch l. c. part;—DIASTYLÆ trib. *leptacanthæ* et trib, *homœacanthæ*, Godet l. c.

41 R. Sabauda, Rapin.
42 R. alpina, R.
43 R. pyrenaica, Gon.
44 R. Monspeliaca, Gon.
45 R. pendulina, L.
46 R. lagenaria, Vill.
47 R. sufferti, Kirskl.
48 R. rubrifolia, Vill.

SECTION V.—CANINÆ. De C.; Besser l. c.; De Pronville (Lindley) l. c. p. 97 part; Seringe l. c. part; Duby l. c. part; Lorey et Duret l. c. p. 307 part; Rchb. l. c. p. 619; Koch l. c.; Deseg. l. c. pp. 52 and 12; Reuter l. c. p. 69, excl. *R. stylosa*;—DIASTYLÆ trib. *campylacanthæ*, Godet l. c.

Trib i.—NUDÆ. Leaves glabrous, simply or doubly dentate, peduncles glabrous, styles free.

49 R. canina, L. †
50 R. nuda, Woods. *
51 R. Crepiniana, Deseg. *
52 R. subcristata, Baker. *
53 R. Watsoni, Baker. *
54 R. senticosa, Achar.
55 R. fallens, Deseg.
56 R. Touranginiana, D. et Rip.
57 R. ramosissima, Rau.
58 R. globularis, Franch.
59 R. spuria, Puget.
60 R. sphærica, Gren.
61 R. Schultzii, Rip.
62 R. aciphylla, Rau.
63 R. Malmundariensis, Lejeune.
64 R. squarrosa, Rau.
65 R. rubelliflora, Rip.
66 R. rubescens, Rip.
67 B. dumalis, Bechst. †
68 R. adscita, Deseg.
69 R. armatissima, D. et Rip.
70 R. biserrata, Merat.
71 R. Reuteri, Godet.

Digitized by Google

Trib. ii.—HISPIDÆ. Leaves glabrous, simply or doubly dentate, peduncles always hispid, glandulose, styles free.

72 R. montana, Vill.
73 R. glandulosa, Bell.
74 R. Chavini, Rapin.
75 R. Caballicensis, Puget.
76 R. Salævensis, Rapin.
77 R. Perrieri, Songeon.
78 R. Pouzini, Tratt.
79 R. surculosa, Woods. *
80 R. Andegavensis, Bast. †
81 R. vinealis, Rip.
82 R. Kosinsciana, Bess.
83 R. vertillacantha, Merat.
84 R. Acharii, Bieb.
85 R. Haberiana, Puget.
86 R. psilophylla, Rau.
87 R. gallico-canina, Reut.
81 R. macrantha, Desp.

Trib. iii.—VILLOSÆ. Leaves more or less villose above or below, peduncles glabrous, villose or glandulose, styles free.

89 R. erythrantha, Bor.
90 R. obtusifolia, Desv.
91 R. cæsia, Smith. *
92 R. pruinosa, Baker. *
93 R. canescens, Baker. *
94 R. dumetorum, Thuil. †
95 R. urbica, Leman. †
96 R. platyphylla, Rau. †
97 R. uncinella, Bess. †
98 R. coriifolia, Fries. †
99 R. celerata, Baker. *
100 R. corymbifera, Borkh.
101 R. Deseglisei, Bor.
102 R. Bellavallis, Puget.
103 R. approximata, Deseg.
104 R. collina, Jacq.
105 R. Friedlanderiana, Bess.
106 R. alba, Lin.

SECTION VII.—EGLANTERIÆ. Deseg. l. c. p. 51;—CINNAMOMEÆ. Seringe l. c.; Duby l. c.;—PIMPINELLIFOLIÆ. Koch l. c. part.

107 R. lutea, Miller.

SECTION VIII.—RUBIGINOSÆ. De Cand.; Besser l. c.; De Pronville (Lindley) l. c. p. 86 part; Rchb. l. c. p. 617 (excl: *R psilophylla*); Deseg: l. c. pp. 53 and 13; Reuter l. c. p. 71;—CANINÆ. Seringe l. c. part; Duby l. c.; Lorey et Duret, l. c. part;—DIASTYLÆ trib. *campylacanthæ, b. resinoso-glandulosæ*, Godet l. c.

Trib. i.—GLANDULOSÆ. Leaves with scattered glands, ordinarily somewhat abundant.

108 R. tomentella, Leman. †
109 R. similata, Puget.
110 R. Blondæana, Rip. †
111 R. trachyphylla, Rau.
112 R. Wasserburgensis, Kirskl.
113 R. Pugeti, Bor.
114 R. flexuosa, Rau.
115 R. pseudo-flexuosa, Ozan.
116 R. speciosa, Deseg.
117 R. nemorivaga, Deseg.
118 R. Jundzilliana, Bess. †
119 R. gallico-umbellata, Reuter.

Digitized by Google

Trib. ii.—PSEUDO-RUBIGINOSÆ. Leaves glabrous beneath, covered with viscous glands.

120 R. Borreri, Woods. *
121 R. Klukii, Besser.
122 R. Lugdunensis, Deseg.
123 R. Lemanii, Bor.
124 R. Cheriensis, Deseg.
125 R. Seraphini, Viv.
126 R. agrestis, Savi.
127 R. sepium, Thuil. †
128 R. arvatica, Puget. †
129 R. mentita, Deseg.
130 R. vinacea, Baker. *
131 R. cryptopoda, Baker. *
132 R. Virgultorum, Rip.
133 R. Biturigensis, Bor.

Trib. iii.—RUBIGINOSÆ. Leaves ordinarily pubescent beneath, and covered with resinous glands.

134 R. Jordani, Deseg.
135 R. permixta, Deseg.
136 R. rubiginosa, L. †
137 R. septicola, Deseg.
138 R. echinocarpa, Rip.
139 R. umbellata, Leers.
140 R. comosa, Rip.
141 R. marginata, Walbr.
142 R. nemorosa, Lib. †
143 R. micrantha, Smith.
144 R. rotundifolia, Rau.
145 R. fœtida, Bast.
146 R. Bakeri, Deseg. *
147 R. spinulifolia, Dematr.
148 R. terebinthinacea, Bess.

SECTION IX.—TOMENTOSÆ. VILLOSÆ. Besser l. c.; De Pronville (Lindley) l. c. p. 75 part; Rchb. l. c. p. 615, (excl. *R. glandulosa*, Bell); Deseg. l. c. pp. 54 and 14;—CANINÆ. Seringe l. c.; Duby l. c.; Lorey et Duret l. c.; Koch l. c. p. 250;—DIASTYLÆ trib. *orthocanthæ*, Godet l. c.

149 R. vestita, Godet.
150 R. Dicksoni, Lindl. *
151 R. cuspidata, Bieb. †
152 R. Tunoniensis, Deseg.
153 R. omissa, Deseg.
154 R. Annesiensis, Deseg.
155 R. dimorpha, Bess.
156 R. gracilis, Woods. *
157 R. Doniana, Woods. *
158 R. Sabini, Woods. *
159 R. Wilsoni, Bor.
(Perhaps should be in Section iii.)
100 R. tomentosa, Sm.
161 R. scabriuscula, Sm. *
162 R. subglobosa, Sm. †
163 R. Andrzeiouskii, Bess. †
164 R. mollissima, Fries. †
165 R. resinosa, Sternb. †
166 R. minuta, Bor.
167 R. Grenierii, Deseg.
168 R. pomifera, Herm.

Lamothe d'Insay.

Digitized by Google

SOME ADDITIONS TO GIBSON'S "FLORA OF ESSEX."

By James Britten.

In the following list will be found the names of many plants which botanists may generally consider common. But though these may be frequent throughout many counties, they do not appear to be as yet thus accounted in the present one; as in the "*Flora of Essex*," special localities, and sometimes but few of them, are given for all the species mentioned below. The small district of country between Ingatestone and Stock, and, indeed, the whole of the immediate vicinity of the latter place, appears to have been overlooked by Essex botanists; and the same may be said of the neighbourhood of the little village of Runwell, distant about five miles from Stock: and it is in the hope of filling up this gap, that I have drawn up the following, trusting that it may not be uninteresting to some of the readers of "The Naturalist."

Ranunculus auricomus. Woods, Buttsbury, and Stock.

R. hirsutus. Cloverfield, Buttsbury: abundant in cornfields about Stock, with *R. arvensis.*

Nuphar lutea. Elm-brook, near Buttsbury Church.

Chelidonium majus. Hedges, Stock.

Lepidium campestre. Sides of fields, &c., Buttsbury.

Polygala vulgaris. Stock Common.

Arenaria trinervis. Hedges about Stock, abundant.

Oxalis Acetosella. White's Wood, Buttsbury; not at all common in this neighbourhood.

Euonymus europæus. Hedges, Buttsbury, &c.

Medicago maculata. Abundant at the foot of a wall in Stock, near the Church.

Trifolium procumbens. Field near Buttsbury Church.

Lathyrus Nissolia. Hedge betwen Buttsbury and Stock.

Orobus tuberosus. Bishop's Wood, near Stock.

Pyrus torminalis. Hedge at Runwell, sparingly.

P. aucuparia. Bishop's Wood, Stock, abundant.

Chrysosplenium oppositifolium;—*Adoxa moschatellina.* White's Wood, Buttsbury.

Viburnum Opulus. Hangman's Wood, Buttsbury.

Bunium flexuosum. Hangman's Wood, &c.

Asperula odorata. Wood at Stock, and White's Wood; it appears but sparingly in this neighbourhood.

Vinca minor. Copse at Stock.

Digitized by Google

V. major. Hedge between Ingatestone and Buttsbury, an escape.

Cuscuta Trifolii. Cloverfields, Buttsbury; frequently too abundant.

Orobanche Rapum. Buttsbury, 1857-58.

Myosotis versicolor. Bank near Runwell.

Rhinanthus crista-galli. Meadows, Buttsbury, sparingly; abundant about Runwell.

Lamium Galeobdolon. Hedges near Stock, plentiful.

Stachys Betonica. Hangman's Wood.

Veronica montana. Hangman's Wood, abundant, said to be not common "in the county."

Primula vulgaris. Most abundant about Buttsbury, &c.

P. veris. Buttsbury, very sparingly.

Listera ovata. Hangman's Wood, &c.

Lysimachia nemorum. About Stock; and in Hangman's Wood.

Anagallis cærulea. Once seen near Runwell.

Orchis Morio. Meadows near Ingatestone and Margaretting.

O. mascula. Woods and meadows, Buttsbury.

O. maculata. Brett's Wood, Buttsbury; and near Brentwood.

Hottonia palustris. Pond in White's Wood, where it has been recently destroyed.

Epipactis. Two examples of a species of this genus were noticed in June last in Hangman's Wood: They were probably *E. latifolia*, but were in too young a state for positive determination.

Iris pseud-acorus. Elm-brook, Buttsbury.

Convallaria majalis. Bishop's Wood, Stock.

Luzula sylvatica. Hangman's Wood, &c.

Equisetum Telmateia. About Runwell.

Polypodium vulgare;—Polystichum aculeatum. Hedgebanks, Buttsbury, &c.

Asplenium Adiantum-nigrum. Bank near Stock.

A. Trichomanes. Bank, near Stock. *Miss Hardy.*

Blechnum boreale. Wood, near Stock, abundantly.

Some of the local plant-names are rather extraordinary. *Orchis Morio* is called "Cuckoos," but this name is applied indiscriminately. *Stellaria Holostea* is very appropriately named "Snap-crackers;" and *Veronica Chamædrys*, "Cat's-eye." *Anthriscus sylvestris*, and most of the hedge *Umbelliferæ*, own to the elegant cognomen of "Cow-mumble;" and other examples might be given.

Digitized by Google

Reports of Societies.

Botanical Society of Edinburgh.

XXIX. SESSION—III. MEETING.

The society met on Thursday, 12th January, at 5, St. Andrew Square—Professor Balfour, V.P., in the chair.—The following communications were read:—

I. Account of Excursions to the Mountains at the head of Loch-Lomond, to Ben Lawers and the Sow of Athole, in August and September, 1864. By Professor Balfour.

In this paper the author gave an account of an excursion made with pupils to Inverarnan, at the head of Lochlomond; and of excursions to Ben Voirlich, Benmore, Binnain or Stobbinnain, the Cobler, Benima, and the shores of Lochlomond, from August 9th to 13th. Among the more interesting plants noticed were the following:—*Sagina nivalis*, on Binnain, along with *Draba rupestris*, *Carex vaginata*, and *Polypodium alpestre*; on Ben Voirlich all the ordinary alpine species were collected. On August 20th Dr. Balfour visited the mountain called the Sow of Athole, and gathered on it *Phyllodoce cærulea*, *Azalea procumbens*, *Lycopodium annotinum*, *Cornus suecica*, and other alpine plants. On 25th August he made an excursion to Ben Lawers, and found abundance of *Sagina nivalis* on the spot, where he had gathered the plant in 1847. He also picked *Saxifraga cernua*, *Draba rupestris*, and numerous other alpine species. Specimens of the plants were exhibited, and remarks were made on the local distribution of plants in Scotland, specimens being shown of species confined to single localities and of others only found in two or three places.

II. Notice of *Dilivaria ilicifolia* (Juss), sent from Old Calabar by Mr. Hewan, and now flowering in the Edinburgh Botanic Garden. By Professor Balfour.

Dr. Balfour showed specimens of the plant from the Botanic Garden. He agreed with Dr. Thomas Anderson in thinking that it cannot be separated from *Acanthus*. He gave a description of the plant, and mentioned that the seeds had been sent from Old Calabar by Archibald Hewan, Esq., medical missionary there.

III. Notice of *Rosa alpina* (Deseglise), found naturalised near Perth. By F. B. W. White, M.D.

Dr. White stated that he had gathered this rose in the depth of the woods on Kinnoul Hill, near Perth, where it seems to have fairly established itself. He gave a description of the plant and exhibited specimens from the locality. The plant is not uncommon on the Continent.

Digitized by Google

IV. Among the extracts from botanical correspondence, communicated by Professor Balfour, was:

A letter from the Rev. James Farquharson, noting some of the rarer plants which occur in the neighbourhood of Selkirk, among which are *Trientalis europæa, Neottia nidus-avis, Lathræa squamaria, Plantago media, Blysmus compressus, &c.*

Mr. Sadler exhibited specimens of *Cystopteris fragilis* var. *interrupta*, which he had picked in Glen Farg, near Bridge of Earn, in 1863.

Dr. James Stirton, Glasgow, sent specimens of *Mnium cochlearifolium*, found by him on the hills behind Dunoon.

Specimens were exhibited of *Sagina ciliata* (Fries) and *Arenaria leptoclados* (Guss), which had been transmitted from Old Machar, Aberdeenshire, by Mr. John Sim; also specimens of *Simethis bicolor* (Kunth), from Bournemouth, and of *Phalaris paradoxa* (L) from Swanage, transmitted by James Hussey, Esq., of Salisbury.

Mr. John M'Donald exhibited a peculiar monstrous condition of a double Roman narcissus.

Dr. Greville sent a specimen of the common Carnation exhibiting monstrosity in flowers, all the floral envelopes being changed into scales or bracts.

Professor Balfour announced the painful intelligence of the death of Dr. W. Balfour Baikie, one of the early members of the society, who had distinguished himself by his discoveries in Africa. He died of dysentery at Sierra Seone, on 30th November last.

Observations.

The Natterjack Toad.—The Natterjack, *(Buffo calamita,)* of which I have several specimens in my Reptile Vivarium, is at once distinguishable from the Common Toad, by the very bright yellow line along the vertebral column. The general colour is a sort of olive striped with black, and dark green on the flanks and legs. It is also spotted with red tubercles, giving it altogether quite a handsome appearance. When surprised they begin walking or running off (at a pace between the two). They always go in pairs. They seem to be more delicate than the common species, as mine scarcely ever enter the water at this season, while the latter frequently do. I find them most commonly on sunny days, where a pond has nearly dried up. Mine are now tame enough to eat out of my hand. Their food consists of worms and insects, which they catch by their tongues in the same way as the other species. Their croak is hoarser than that of the Toad. I have now a Toad which croaks whenever handled; and a Croaking Natterjack of my catching

Digitized by Google

is in the Zoological Gardens. A person inhabiting a disused semaphore, on a heath in Surrey, says that they do great mischief in his garden by digging their sleeping holes in the seed beds. These holes are dug straight for a few inches, and then there is a passage at right angles to the perpendicular one, in which the reptile lies. The men calls the Natterjacks, "Goldenbacks." I find them on heaths in the parishes of Cobham and Wisley, Surrey. They are also found (as I have been told) in Norfolk, near Norwich, and in Suffolk, near Southwold. I shall be very glad to send specimens to any naturalist who will write and ask me. I also should like to know of any other locality where they are to be found.—W. R. Tate, 4, Grove Place, Denmark Hill, London.

Scottish Summits.—No. II.

(Ben Lomond.)

July 6th, 1864. Ben Lomond, like Ben Venue, consists of the mica schist formation, with the veins of quartz more strongly developed. Its height is 3,192 feet. My ascent was from Inversnaid, not far from Rob Roy's cave. The sides of the cascade near the inn are covered with the Filmy Fern, (*Hymenophyllum Wilsoni*), which was fruiting abundantly where it was exposed to the spray. Higher up the mountain torrent, the graceful Oak-fern (*Polypodium Dryopteris*) and the Beech-fern (*P. Phegopteris*) were growing side by side, imbedded in Sphagnum. Still higher the fragrant Shield-fern (*Lastræa Oreopteris*) told of its presence. I now diverged from the stream, and skirted Loch Lomond in the direction of the mountain. Here the Royal Osmund (*Osmunda regalis*) grew most luxuriantly, covering a considerable tract, and throwing up its fruiting spikes in great abundance. The oak copse where the fern grew, seemed to be the resort of the Gad-fly (*Tabanus bovinus*) so much dreaded by the black cattle in the summer, and whose loud humming may be often heard when the sun is the hottest. I noticed on the ascent several plants of the Spignel (*Meum Athamanticum*) with its finely divided leaves. This montane plant is known in old herb-gardens under the name of bald-money. As I came within sight of the summit, I heard the wild cry of the Curlew (*Numenius arquata*) that kept ever varying its singularly shrill notes the nearer I approached. And now I began to climb the shoulder of Ben Lomond. Every now and then an Alpine hare (*Lepus variabilis*) would rush away from its seat among the bent-grass. The change of coat takes place in this species in September, when the whole fur becomes quite white, with the exception of the ears, which

Digitized by Google

always remain black. In summer the fur is tawny, with a plentiful sprinkling of black. The Alpine hare does not associate with its neighbour of the plains, and rarely leaves its home on the mountain-side. The Alpine flowers now began to appear. First and foremost was *Sibbaldia procumbens*, a Potentilla-looking plant that is readily recognised by its ternate leaves and tridentate leaflets. Then *Silene acaulis*, one of the pink tribe, with its light-green cushion-like tufts and rose-coloured flowers attracted notice. *Cerastium alpinum* is a charming alpine plant. Its woolly leaves and snow-white flowers may well rival our border foliage-plant so generally in cultivation, under the name of *C. tomentosum*. A pretty little rush, rejoicing in the name of *Juncus trifidus*, was growing in shaded places, near the very summit of the mountain, with *Gnaphalium supinum*, a very dwarf Everlasting, that flowers when only an inch or two high. These, and the others previously noticed on Ben Venue, were duly consigned to my botany-case.—PETER INCHBALD, Storthes Hall, Feb. 3rd, 1864.

---

*Bombyx Cynthia.**—It has long been supposed, and it is still the belief of many, that silk is obtained exclusively from *Bombyx Mori*. *Bombyx Cynthia* is also a silkworm, and has been reared at Sheriff Hutton Park, in the open air, on plants of *Ailanthus glandulosa*. It is a native of the colder parts of China, and some of the living cocoons were sent thence in 1856 by a Piedmontese missionary (the Abbé Fantoni) to his friends at Turin. From Piedmont it was introduced into France, where the cultivation is now being pursued with profit by independent persons, and also by others with assistance from the Government. Though the silk of this insect is already used extensively in France, it is only as spun silk, that is to say carded like wool, instead of being wound direct from the cocoon in a continuous thread, as in the case of the mulberry silkworm. Having watched the caterpillar in the act of spinning, it does not appear to me that there is an impossibility in obtaining a continuous thread. The difficulty arises from the threads being laid more compactly than those of the mulberry silkworm, and being cemented with a gum which we have not yet the secret of dissolving. The cocoon of the *Bombyx Cynthia* is formed with an elastic opening for the egress of the mature

* The substance of a Paper by Lady Mary Thompson, of Sheriff Hutton, read before the Yorkshire Philosophical Society, by Luke Thompson, Esq. Communicated by Mr. John Ranson, of York.

Digitized by Google

insect, and the supposition was that such an opening could not be made unless the threads were cut; but that, however, has already been proved to be a mistake. From France the insect has been brought into England. The experiment of its acclimatization was first tried by Lady Dorothy Nevill, at Dangstein, near Petersfield, Hampshire. In the autumn of 1863 (with a view to a similar experiment), some Ailanthus were planted in the garden at Sheriff Hutton Park; and in the spring, two were set in pots in the greenhouse, as it seemed not unlikely that the worms might do better on the living tree than on sprays gathered and placed in water, which was the method usually adopted. My wish of making the experiment (of how far the climate of this part of England might suit these silkworms) becoming known to Lady Dorothy Nevill, she very kindly made me a present of two dozen newly hatched worms, which reached Sheriff Hutton Park at half-past seven o'clock on the morning of June 30th. They were first supplied with fresh gathered leaves, and, within two hours, 23 were placed on one of the plants in the greenhouse; the other worm, though alive when the letter was opened, died shortly afterwards. In this situation they throve satisfactorily, making changes, the description of which, by Mons. F. Blain (in a little publication entitled "Le ver à soie de l'Ailante et son éducation en Anjou," is so accurate that I prefer using it, to attempting one of my own. One little omission, however, I must supply in its place.

"The first age is the interval which passes from birth to the first change; in this age the young caterpillar is blackish, and its length is about four millimètres (about one-sixth of an inch) The second age is that which separates the first change from the second. The body of the caterpillar at that time is yellow, with the head, the points of the segments, and the tubercles black. It measures from eight to ten millimètres long; and in the third age the body is from fifteen to seventeen millimètres long, it is soon covered with a waxy substance, quite white, intended to shield it from the rain."

Mons. Blain has omitted to notice that at this age the tubercles grow into (as it were) pyramids, or, rather, obelisks, each one capped with a black spot, the insect presenting a more singular appearance than it does at any other time. While in the greenhouse three worms unaccountably disappeared, twenty only remaining for the open air experiment. On Friday, 15th July, the plant was taken, with the worms on it, from the greenhouse, and placed under the Ailanthus in the garden (which, as a safeguard against birds, had been netted over), and the silkworms soon dispersed themselves over the trees. The change from a heat of upwards of 70 degrees to a low summer temperature seemed

Digitized by Google

contrary, to invigorate them, and they grew rapidly. Shortly afterwards, however, one died, apparently in the attempt to move from one to another of the trees. The changes proceeded regularly, the worms increasing wonderfully in size in the course of a very few days. One, however, remained in the waxy stage, and seemed utterly unable to divest itself of that skin. Mons. Blain's description of these changes is as follows:—"In the fourth age the waxy substance still exists, but the body and tubercles from white pass little by little to green; the head and the feet become of a beautiful golden yellow, as well as the last segment. At that time it attains from twenty to twenty-five millimètres. In the fifth age the green colouring becomes more decided; the extremity of the tubercles is blue; it has on the last segment a blue border, as well as a little speck of the same colour at the rise of its membranous feet. It quickly acquires a length of from eighty to ninety millimètres; in this condition it eats less, its colouring becomes yellowish, after which it loses no time in finding one or two leaflets, which it fastens firmly to the principal stalk, in order to fix its cocoon." On Friday the 29th of July, between seven and eight o'clock in the evening, the gardener noticed that one was spinning, and before morning it had covered itself up entirely. On Sunday, the 31st, another began, and, by two o'clock, had made considerable progress, but, rain coming on, prevented me observing it. After this there never was a day when cocoons were not begun, and by the afternoon of the 3rd of August (the last opportunity I had of seeing the worms), twelve had already covered themselves up. On my return home the gardener reported to me that, in the week beginning Sunday, the 14th, three died, owing, it may be supposed, to a violent hailstorm, for they never seemed to thrive after it. This loss left only one remaining to spin, the one the changes of which had been so protracted. On Saturday, the 20th August, I saw it; it had grown to be larger than any, and appeared extremely vigorous. Up to the evening of Monday, the 22nd, it was eating voraciously; but, on Tuesday morning, it was found at the foot of its tree, and it died soon afterwards; the great cold of the night was probably the cause. Wednesday, 24th, gathered all the cocoons, fifteen in number, fearing that, as the thermometer had been down in the night to the freezing point, the cold might injure the chrysalids. Friday, 26th, divested the cocoons of all leaf, and hung them up in a temperature seldom

Digitized by Google

lower than sixty, and occasionally warmer. On Friday, the 23rd of September, about 7.30, a bat, supposed to be in the room in which were the cocoons, was caught, and proved to be a *Bombyx Cynthia*. The specimen was unfortunately greatly injured by being caught with the *tongs!* It was caged in a basket where it lived between ten days and a fortnight. During the day it remained very tranquil, towards evening increasing in liveliness, and being invariably in a state of excitement in the night. On Wednesday, the 19th of October, about twenty minutes past five o'clock, p.m., another *Bombyx* emerged from its cocoon. The expansion of its wings proceeded visibly but unequally, the upper one on the left side keeping much in advance of the others. It should be mentioned that the worms generally, previous to spinning, attained the full size given by Mons. Blain (80 to 90 millimètres) and some even exceeded it. It may be observed that the worms on arriving, were apparently of the same age, nevertheless there was an interval of three weeks between the spinning of the first on the 29th July, and the death of the last without spinning, on the 22nd August. The Ailanthus has been long known in England as an ornamental tree, bearing all the changes of our variable climate; the silk worm, to judge by the limited experiment at Sheriff Hutton Park, can be raised in the open air even in Yorkshire. It is scarcely therefore being too sanguine to hope that at no distant time a new cultivation will be practised, which may contribute somewhat to the prosperity of the country. In order to pursue the experiment as rapidly as possible, the propagation of the plant has been tried at Sheriff Hutton Park by several different methods, namely: By pieces of the root which struck readily, by seeds sown in a cool frame, and by seeds sown in an open border, which last succeeded the best, a crop of vigorous young plants appearing in about four weeks. Believing that the climate of this part of Yorkshire is not unsuitable, and that the Ailanthus would grow well in not fertile land, I had some few planted in a sandy situation, but the extraordinary frost of the 1st June destroyed the young foliage, though it did not kill the trees. It was mentioned in a French publication, that owing to the very unpleasant odour of the Ailanthus glandulosa it was safe from the attacks of ground game; a statement which I am sorry to say my experience does not confirm, rabbits having injured the trees planted in a spot to which they had obtained access.

Digitized by Google

Small Birds.—In the interesting report of the Leeds Naturalist Society, in No. 18, of the "Naturalist," reference is made to the scarcity of small birds in France. I beg leave to point out that this scarcity is probably in consequence of the insufficiency of breeding accommodation. On this subject Mr. Thompson, the Irish naturalist, remarked many years ago;—"Travellers in the north of France cannot but perceive the almost total absence of birds in that district. The country is open, and rarely broken by a hedgerow; and thus shelter being denied them, they seek more favoured spots." Nearly all the small insectivorous birds breed in hedges, bushes, or coppices. Another fact is further explanatory of this paucity of birds in France: the French kill nearly everything that flies, however small it may be, for the table. In Italy as well as France, birds as small as the robin, are regularly killed for food. Allusion is made by Mr. Dixon to Blackbirds, in a way which seems to imply that the practice followed by gardeners and others of destroying them is reprehensible. I can affirm that the blackbird is a great pest in an orchard; I have had ample opportunity of judging of its orchard habits. It is perhaps the most frugivorous of all the thrushes. It has a particular fondness for gooseberries. The injury it does among the gooseberries must not be estimated by what it consumes. Many are pecked at, and rendered valueless, and then left. The Blackbird is not such a friend to gardeners as many seem to suppose. It feeds partially on insects only during about two months of the year, April and May. In June it turns to fruit, and lives almost entirely on fruit or seeds, cultivated or wild, throughout the summer and winter to the end of March. In the winter months it lives much on fallen fruit.—GEORGE ROBERTS.

The Recent Exhumation of Bones of the Great Auk.—A very interesting fact in connexion with Ornithology, which has but recently come to light, is the discovery of some fossiliferous remains of the Great Auk (*Alca impennis*), in the ancient shell-mounds and deposits in Caithness. This bird is now utterly extinct in Europe, having but lately died out in Ireland, but said to survive in the inhospitable wilds of Spitzbergen and Greenland. The bones of the *Alca impennis* are of very frequent occurrence in the Danish kjökken-möddings, or refuse heaps, where by some, they have been thought to imply great antiquity and a more glacial climate, but it is believed that they have never been found in any tumuli or mounds of a later formation than these primeval de-

Digitized by Google

posits. The residuary bones discovered in the shell-mounds of Caithness have been satisfactorily identified by Professor Owen, as belonging to the *Alca impennis*, and which form the first direct evidences of specimens of the bird having been taken on our northern coasts. Ornithologists now, in their future classifications, may hesitate no longer in including the *Alca impennis* as a genuine old British bird, though an inhabitant, probably, of our northern rock-bound coasts, at some period anterior to the Roman occupation. Professor Owen concludes that, from the presence of bones of the Great Auk among the remains of the ancient Caithness people, the bird is clearly proved to be entitled to a place in the records of our British birds. As may be supposed, from the extreme limits to which, in the Arctic regions, it is now principally confined, our acquaintance with its habits and economy is extremely imperfect. The northern latitudes are more congenial to the habits and ichthyological predilections of the Great Auk, to which they afford a wider and more extended sphere, than our own and adjacent climates. The wings are but partially developed, and incapable of sustaining it in aërial locomotion, thus necessitating the adoption of an aqueous mode of existence, for which in other respects it is admirably adapted. The most northern limitation of the Great Auk is unknown, for so far, however, as our most intrepid Arctic explorers have penetrated, there the Auk has always been seen. It is rarely seen on shore except during the breeding season. The Little Auk (*Uria alle*) is one of the hardiest and most diminutive of the Auk tribe, and is met with in the locality of Baffin's Bay and Melville Island, in large flocks, where they appear to enjoy the inclemency of the climate as much as their human companions the Esquimaux. In Greenland and Spitzbergen they swarm in countless numbers, watching for the breaking up and dispersion of the great icefields, when they search for crustacea in the fissures of the broken and dissolving ice. They very rarely pay a visit to this country, indeed, those that have been seen are more probably impelled by the violence of Arctic storms, than as visitants in search of a resting stage for the season. Another species which is found also in the northern regions is the Razor-billed Auk (*Alca torda*), but which, unlike its congeners the Great and Little Auks, is a frequenter of warmer latitudes and more temperate climes, including the sea-boards of France, Holland, Germany, and Great Britain. The *Alca torda* is very

Digitized by Google

common in Scotland—and in the Hebrides are several of their breeding places.—E. Foxton-Firby, F.A.S.L., F.E.S., Loc. Sec. A.S.L., &c., Grewelthorpe, Ripon.

Scottish Summits.—No. III.
(Ben Voirlich.)

July 14th, 1864. My next climb was Ben Voirlich, at the head of Loch Lomond. Height 3,160 feet. Here again we have the mica-slate formation, with veins of intersecting quartz. I followed in the track traced out by Professor Balfour, who had ascended this mountain with his botany-class some years previously. Crossing the lake immediately opposite Inversnaid, I skirted the stream till I came to Loch Sloy, where the ascent begins. Loch Sloy is not so much fished as the other Lakes, it offers consequently good sport to the angler, if he will be satisfied with small-sized fish, for the trout are generally small. It is a wild, lonely gorge, a favourite resort of the raven, which here croaks in security. During my ascent of Ben Voirlich, I made acquaintance with the Red and Black Grouse and the Ptarmigan, each occupying its own belt on the mountain. They would all seem to be common to most of the mountain ranges around the Lake. I saw my old friends among the Alpine plants, a stranger occasionally putting in an appearance. Among those not previously noticed, was the Alpine rue, (*Thalictrum alpinum*) a pretty little plant with shining deep-green leaves, and a spike of tiny white flowers. I found it growing amongst the grass, and clustering around the springs and rivulets. Occasionally in the crevices of the rock there was the Alpine hawkweed, (*Hieracium alpinum*) growing like so many of its kindred of the plains in the driest spots. I had a good opportunity, by the aid of my field-glass, of studying the habits and plumage of a young cuckoo, which had been hatched by the titlark. I could not ascertain whether both birds fed the foster-child. I think they did. It was very eager for its food, uttering incessantly a little impatient note, like that of the young robin. The titlark had to stand on tip-toe to feed her nursling. Its plumage was brown, and the bars of the feathers on the back were darkly defined. At a lower altitude than *Gnaphalium supinum*, grew *G. dioicum*, with its lovely rose-coloured everlasting flowers and white underfoliage. The Bladder fern (*Cystopteris fragilis*) was there in all its varieties, and they are not a few. On the topmost cairn, the lonely Wheatear was sitting as sentinel, uttering his harsh notes, the only sound that broke the silence of the solitary summit. All round the

Digitized by Google

cairn of stones there was a perfect cushion of *Trichostomum*, as soft as any Turkey carpet. It seldom fruits, however, at such an altitude. The clouds gathering in Glen Falloch, and coming along at race-horse speed, warned me to descend, and I had hardly gone down many yards before I saw the whole summit shrouded in dense cloud. During the descent, I saw patches of the Dwarf Juniper and Cowberry *(Vaccinium Vitis-Idæa)*, ripening their berries for the grouse. Twilight soon came on, and the Nightjar *(Caprimulgus Europæus)* began to utter his purring notes in the fir plantings below, and the Grasshopper Warbler *(Sylvia Locustella)* his cricket-like notes in the fenny copses. I was glad to get back safe again to Inversnaid.— PETER INCHBALD, Storthes Hall, Feb. 17th, 1864.

Exchange.

I am desirous of exchanging the following Land and Fresh Water Shells for Marine Shells :—*Cyclas rivicola, C. cornea, C. cornea* var. *stagnicola, C. lacustris, Pisidium amnicum, Unio tumidus, U. pictorum, Anodonta cygnea, Dreissina polymorpha, Neritina fluviatilis, Paludina Listeri, P. vivipara, Bithinia tentaculata, B. Leachii, Valvata piscinalis, Clausilia nigricans, Azeca tridens, Zua lubrica, Succinea putris, Physa fontinalis, P. hypnorum, Planorbis corneus, P. albus, P. glaber, P. nautileus, P. carinatus, P. marginatus, P. vortex, P. spirorbis, P. nitidus, Limnæa peregra, L. auricularis, L. truncatulus, L. glabra, L. palustris, Ancyclus fluviatilis, A. oblonga, Cyclostoma elegans, Vitrina pellucida, Zonites cellarius, Z. alliarius, Z. nitidulus, Z. purus, Z. excavatus, Z. crystallinus, Helix aspersa, H. pomatia, H. arbustorum, H. Cantiana, H. hybrida, H. virgata, H. virgata,* var. *alba, H. caperata, H. ericetorum, H. lapicida, H. rufescens, H. sericea, H. aculeata, H. fulva, H. fusca, H. rotundata, Bulimus acutus, B. obscurus, Pupa umbilicata, Clausilia laminata.* Parties not receiving answers in three days must conclude that their offers are not accepted.—GEORGE LUMB, Tobacconist, Kirkgate, Wakefield.

I have duplicates of the following in fine condition :—*P. Machaon, P. cratægi, C. Edusa, M. Artemis, V. C-Album, V. polychloros, V. cardui, N. lucina, S. tiliæ* (bred), *S. Ligustri* (bred), *H. velleda, P. statices* (fine), *C. dominula, L. monacha* (bred), *O. fascelina, D. coryli* (bred), *T. cratægi* (bred), *P. populi* (bred), *B. neustria* (bred), *S. carpini* (bred), *E. vespertaria E. apiciaria, V. maculata, H. pennaria. N. zonaria, A. prodromaria, A. betularia, S. clathrata, M. albicellata, M. tristata, E. cervinaria, P. lacertula, P. falcula, C. curtula, C. anachoreta, C. reclusa, P. palpina, N. camelina, D. cæruleocephala, T. derasa, T. batis, C. fluctuosa, C. diluta, L. littoralis, L.*

Digitized by Google

comma, L. phragmitidis, N. despecta, G. flavago, X. sublustris, X. hepatica, X. scolopacina, H. popularis, C. graminis, A. connexa, A. saucia, A. tritici, T. janthina, T. fimbria, N. glareosa, N. brunnea, N. Dahlii, O. suspecta, X. citrago, X. cerago, X. silago, C. diffinis, C. affinis, D. cap-sincola, P. flavocincta, E. viminalis, C. verbasci. A. myrtilli, A. luctuosa, P. V-aureum, A. pyramidea, T. pastinum.— Parties not receiving an answer within one week, may consider I am not in want of their insects.—WILLIAM TALBOT, Mount Pleasant, Wakefield.

Original Articles.

NOTES ON THE MUSTELIDÆ OF NORTHUMBERLAND. No. 1 :—THE OTTER.

BY T. H. GIBB.

OTTER (*Lutra vulgaris.*)—Representatives of all the British Mustelidæ are to be met with in Northumberland, these embrace *Martes abietum, Putorius fœtidus, Mustela furo, Mustela vulgaris, Mustela ermina, Meles Taxus,* and *Lutra vulgaris,* and believing that a few brief notes respecting each genus of this interesting family may not be altogether uninteresting to the readers of the "Naturalist," I am induced to offer them, beginning with the last named, *Lutra vulgaris.* Perhaps of all our indigenous mammalia, there is not one with which we have less acquaintance than the otter. Its nocturnal and crepuscular habits, its extreme intuitive caution, and the readiness with which it can in its native haunts conceal every movement, render it at all times a difficult matter to obtain even a passing glimpse of this predacious denizen of our sylvan trout streams. He who would witness him in his native wilds, must be possessed of no small amount of perseverance. Evening after evening, he must place himself in ambush where an otter is known to frequent, and if after repeated watchings he fails to discover him, he must try and try again until his efforts are crowned with success, when I feel assured he will be amply repaid for all his anxious "hours of vigil," for I know of no finer sight in nature than to see a pair of otters in the sweet twilight of a summer's eve, performing their graceful evolutions in some limpid stream. They will lead you into the loveliest glades and most romantic dells, "'mongst budding hazel groves," and where "the pensive willow sweeps the ambient pool," for these are their especial haunts.

Digitized by Google

It would be superfluous in me to dwell on the habitat of the animal, for this is well known, and for the same reason I need not mention how admirably he is formed and fashioned to perform the part allotted him in the animal economy. I will therefore proceed at once to a few particular and less familiar traits I have observed in his character :—

The inquisitiveness of the otter surpasses that of most other congenerous species, and to satisfy which, he has been known to sacrifice his own safety, and sometimes even life itself—I have seen the otter frequently during the late hours of a summer's evening—on his piscatory excursions, and when stillness and the shades of night gave him full opportunity of displaying his natural habits and instincts without "let or hindrance," and on such occasions, if a wild duck in his evening flight inland happened to alight in a stream, or perchance in affright to fly from one within sight or hearing of an otter, in an incredible short space of time the animal would be upon the spot to ascertain the cause of the disturbance. And at a late hour at night, I have occasionally approached the brink of a stream where an otter was fishing, and very soon a small oval shaped object would protrude from the surface of the water in close proximity to where I stood—it was the head of the otter, his body entirely submerged, and his two small jet black eyes peering inquisitively upon me—and could an otter's lips articulate, his certainly would have uttered the apostrophe often repeated elsewhere, "Stranger, what of the night!" His presence was vouchsafed but for a minute, and then withdrawn, this small space of time being deemed by him sufficient to satisfy his curiosity.

And to be convinced of the otter's inquisitorial propensities, I have repeated the test on several occasions with different individuals, and always with the like result. Notwithstanding the innate shyness and ferocity of the otter, he is when captured young, capable of becoming remarkably docile, and of yielding to kind and persuasive influences. Instances are on record of it having been tamed to capture fish and bring them on land to its master. Some years ago, a person of the name of Hermble, an unostentatious Waltonian, then living in Rothbury, a small village situated on the river Coquet, some twenty miles west from its confluence with the ocean—possessed an otter so wonderfully domesticated, that it went about *ad libitum*, and associated with all the *canes familiares* of the village. And when strangers would call to see him, "Sam" as he was called, was often to "seek up" from amongst his companions in the street, or they would be requested to leave their card, and call again when

Digitized by Google

he could not be found. "Sam" was also trained to "fish" and during the autumnal floods which brought the salmon up the river in great numbers to deposit their spawn on its pebbly bed, was very successful in his fishing raids, and brought to land many a noble fish to the profit and infinite amusement of its owner.

The otter feeds generally on fish, and possesses a most fastidious palate, having a great *penchant* for the finest "tit bits" of the salmon, to wit, the flaky parts of the shoulder, the remainder, where fish are plentiful, being unceremoniously rejected by him, hence it follows that great numbers of the finny tribe fall victims to his epicurean and discriminating taste. He seems partial to eels, and in those waters where the salmon and trout are not abundant, they form the principal item of his daily diet—nor does he reject water rats and water hens, and in the winter when the rivers are bound up with ice and snow, he will betake himself to adjacent gardens, where he plays sad havoc amongst the culinary herbs, cabbages, &c., these being preferred by him to anything else. A few winters ago, a Mr. Bradley, whose domicile abuts on the banks of the Aln, had his garden ransacked every night by some unknown animal, and so frequent and persistent did these nocturnal visits become, that a member of his household ultimately placed a trap in the garden, and on visiting it the next morning, he found the depredator—a fine female otter in "*durance vile.*"—When food fails them in one particular stream, or should they be driven thence as is sometime the case, if they are too persistently chased with hounds, they will travel a great distance to some more propitious place, and on their way thither, possibly over a tract of country destitute of rivers, they will enter rabbit burrows, and even farm yards to secure a passing meal.

There are various opinions as to the mode of the otter capturing its prey. Some assert that it secures the fish by its superior speed in the water—but with due deference to such an opinion, I must confess myself rather sceptical. The adaptability and form of fish for rapid aquatic locomotion, is unquestionably *par excellance;* points in which the otter, though likewise admirably formed for it, falls immeasurably short, nor do I think it natural for the former to be outdone in their own element and by the same means used by a partial intruder, if such I may be allowed to term the latter. There are others again who imagine that the tail renders no small assistance to the successful capture of a fish, believing that he drives them to their hold—say to a large stone at the bottom of the water,

Digitized by Google

and while there, thrusts his tail underneath it, thereby dislodging the fish which rushes out at the other side for safety, but only to run into the tenacious fangs of the otter—but this hypothesis also seems untenable, for the tail certainly lacks that flexibility which is required to arrive at a successful issue in such a mode of capture. Is that important member not rather used solely as a rudder and motive power of propulsion!—From observations I have been enabled to make, I am induced to believe that he invariably secures his prey by keeping underneath it, and clutching it unseen by the abdominal parts, and existing facts I think, will bear me out in this belief, for the visual organs of fish are so placid, that they are precluded from seeing anything immediately underneath or behind them, while from the same cause the otter can more readily perhaps than from any other point of vision, see an object above it; and again, the otter does not as may be supposed, swim underneath the water, for it at once descends to the bottom and runs along the ground, threading its way the same as if on dry land. Thus, when an otter sees a fish, he awaits until it is near the surface, when down he plumps, and by a stealthy but rapid movement approaches until he is immediately below his intended victim, and secures it as I have described. Of course this mode of capture refers only to members of the family *salmonidæ* and *cyprinidæ*, the *anguillidæ* becoming easy victims from their diminished powers of speed.

His tenacity of life is very great, and this coupled with his well developed powers of self-defence, constitute him no mean foe to vanquish—no ordinary dog can overpower him, and in his own element he can conquer three or four canine adversaries. His bite is terribly severe, and when once he procures a hold he seldom quits it. His skin I believe to be invulnerable to the bite of a dog. This arises perhaps not so much from its thick tough oily nature, as from its wonderful elasticity, hence the saying amongst old but unerudite sportsmen, "an otter can turn himself in his skin." I have examined several individuals which have been worried to death—the last of which was one captured last summer in the Jed in Scotland, by the hounds of that indefatigable otter hunter, Mr. Gallon, of Bishop Auckland, and in every case, though I found the entire flesh crushed and blackened with the teeth of dogs, the skin remained intact, and without a single perforation.

The prevailing colour of the otter is a dark chocolate brown, inclining to a dark fawn on the throat and abdomen, and with the muzzle generally blotched with cream coloured spots—but I have met with varieties of a

Digitized by Google

much lighter tint, and one individual taken in the Whiteadder, a tributary of the Tweed, was covered with small white spots or ticks from the head to the tail, while the usual cream colour of the muzzle extended to the under jaw and upper portions of the throat, imparting a strange but pleasing effect to the animal. This individual is now, or recently was, in the possession of Mr. Davison, of North Shields.

The female produces three or four young in the spring of the year—generally in March, and proves herself a most faithful guardian of her offspring, tending them with zealous care, until they are old enough to "go out into the world on their own account." I have seen her jeopardize her own life in her anxiety and maternal care for her progeny; in fact, under no circumstances, can she be induced to abandon them in times of danger, and she will resort to various ingenious stratagems for their better security and defence. The otter is emphatically a playful animal, and often indulges in his moments of hilarity in mock aquatic combats, than to witness which I really know of nothing in animal exploits more pleasing and thrilling to behold. If you will follow me in imagination on a quiet evening in spring, to the brink of a gurgling stream, whose pellucid waters dance merrily over grey and moss covered rocks, I will introduce you to such a scene—in a niche formed of overhanging branches, we are ensconced and completely hidden from view, but with a clear and uninterrupted look out both up and down the river—as we sit expectant watchers of the scene, a modest little *Sturnus cinclus* alights close to us. His clear white breast and dark back contrast pleasingly with the surrounding foliage. At once securely perched, he raises his head and pours out a song which sounds so sweetly to the ear, that Orpheus himself methinks would lay aside his lute to listen it. It is his love ditty, and while we are yet ravished with the simple amatory strains, his mate joins him, together they flirt from stone to stone, anon she dips into the water, and is followed by her swain, and when next they appear, they are far down the stream fluttering to and fro on its surface. On the opposite bank of the river is a covert of long dry grass, and as we look intently into the entangled mass, we see a bright red spot. It is the flesh-like covering on the forehead of a *Gallinula chloropus*, slyly he peers abroad and being assured that no danger is near, shoots out into the current and busies himself in snatching up the insects that float past him, or in tearing off the mollusca adhering to the submerged stones. And now a dark shadow flits through the trees overhead and as we look upward to define the cause we behold an

Digitized by Google

Ardea cinerea descending abruptly on noiseless wing. As he nears the water he checks his speed, and drops into it knee deep, scarcely disturbing its placidity. Sedately he wades through the shallows, and at last remains stationary near to a shelving rock, intently watching a trout, which not being possessed of a discriminating sight, swims unconcious of its danger almost within his reach. But we have now been one hour in our *cache*, and we find the sun is just dipping behind a blue and misty hill in the west. This we know to be the hour that *Lutra vulgaris* leaves his lair, and we now gaze intently down the labyrinth of rocks and trees, from whence we expect him to make his appearance, and at length we hear a shrill whistle not unlike the cry of *Falco tinnunculus*. It is the call of an otter. Near and still nearer, the weird-like sound approaches us, and now it seems to emanate from our very feet, and yet we have not seen the author of the sound, with such consummate skill and ease has the animal glided unperceived up stream towards us—cautiously we peer through the interstices of branches, when an almost imperceptible movement in the water, close to a large flat rock crossing out from the banks attracts our attention, and now at last we catch a sight of the tawny muzzle of our visitor. He hisses loudly like an enraged cat and from this we conjecture that he is either aware of our close proximity or that a companion is near at hand. Happily the latter is the case, for see, he bounds or rather glides over the rock and disappears like an *ignis fatuus* on the other side of it; but scarcely has he been submerged when a second appears and follows after the first, and the next instant we see them together in the middle of the stream, stemming the rapid current and breaking the foam hills amid the eddies in an exciting chase, now one is the pursued, and *vice versa* the next instant is the pursuer—now they leap simultaneously out of the water, snapping at each other as they plunge back into it, and the next instant are out of sight threading their circuitous course along the bottom, as we can see by the chain of air bubbles rising to the surface, and re-appear here and there for respiration. For a moment they desist and float quiescently down the current to a rock, on which they climb, and raising themselves erect on hinder legs they caressingly rub themselves against each other, the while perchance shewing their teeth in mock hostility. Now they utter a semi-defiant challenge for a renewal of their exciting play, when they meet to all appearance in a combat "to the death," and together they roll down into the water and down to the bottom of the stream, their soft and supple

Digitized by Google

bodies undulating in "graceful mien" with their rapid and ever varying movements. Eventually, and it may be believing that "enough is as good as a feast," they betake themselves to a sandy nook "'neath an o'erhanging tree," and carefully smooth down each others usually sleek but now dishevelled fur, each performing the kindly office for the other.—This done they noiselessly descend again into the water, and phantom like glide up to an adjoining stream when we hear a loud splash and presently through the murky gloom of the now fast receding twilight, we see them at last ascend a grassy knoll each in the possession of a fine trout which seems only to whet their appetites and to form the first course of their evening meal; but ere they have yet finished this levy on their finny victims we expose ourselves to their view, and they rush impetuously from the bank and "head" rapidly up the river, whither they will travel it may be for many miles, perchance repeating their gambols and making fresh captures on the way, until the first grey dawn of approaching day appears in the eastern sky, and *sol* lifts his head above the horizon to illumine the surrounding scene with his golden rays, when they return to their lairs on the banks of the river, there to remain *couchant* till the shades of the succeeding evening again call them abroad.

The otter, though not by any means numerous, is generally dispersed throughout the rivers and streams of Northumberland, being met with in the North and South Tyne, the Reed, Wansbeck, Coquet, Aln, the Tweed and its numerous tributaries, and in other rivulets of less note.

Alnwick, January, 1865.

MICROSCOPIC GOSSIP.—No. I.

By N. Burgess.

Introduction.

In all scientific observations and study, first-class instruments are, generally, all in all. This remark applies as much (and perhaps more) to microscopic investigations, as to any other source of close research, and minute enquiry. A good microscope, therefore, is most important. Now to those who are not acquainted with the microscope I will offer a few words by way of explanation at the outset. "The stand," which is the mechanical part, is only so far important as the means of permitting

Digitized by Google

the other parts to be used to their full advantage—hence first-class workmanship is most desirable, nevertheless, where this cannot be paid for, trouble and extra time can often make a less perfect, and more cheaply made stand, do nearly all the work of the most costly.

Next, the "object glasses"—these are far the most important of all; in microscopic parts nothing will make up for bad object glasses, and these involve the largest outlay, but then they can be bought one by one, so that by this means they can be had in time, by any one who is disposed to follow out this study. But I am happy to say that lately cheap sets of object glasses have been brought out, I believe for about 25s. each, (for the lower powers) which really are almost good enough for any purpose, so that object glasses may be said to be within the reach of everybody, and for a beginner will answer almost as well as the very best. With these cheap object glasses there is a cheap Binocular* stand, so that the instrument, which can be used as a Binocular, (then by simply sliding out the prism as a "Monocular,") with two object glasses, case, condenser, and I think two or three smaller etcs., can be had for about £10 10s. 0d. I doubt whether a better instrument than this can be had for the money; several of my friends have had this instrument and are perfectly satisfied with it. Then we come to the "eye pieces," these are more easily to be had than "object glasses." The relationship existing between the "object glasses" and "eye pieces" is simply this, the object glasses have a certain magnifying power, this is again magnified by the eye pieces—for example, let us say the object glass magnifies a certain object 50 diameters, this image is thrown on to the field glass (in the eye piece), where, we will suppose again, it is magnified 10 times;—the total magnifying power will be seen to be ten times 50, or 500 diameters. All this may appear very puzzling to a young beginner, but one thing soon follows another, and there is so much to afford pleasure in the very first

* The Binocular arrangement has two bodies, and two eye pieces, so that both eyes are used when an object is being examined; this, in my opinion, is not yet sufficiently valued by most microscopists; I believe it will be found greatly to preserve the eyes from injury, as well as allowing the observer more comfort during his investigations, while the objects are seen more perfectly, *i. e.* they are seen under the microscope as we see objects by unaided vision. Most persons are unaware of the fact, that with one eye we see objects very differently than we do with two,—to prove this, let a person place himself at a given distance, and closely watch a certain object, using one eye only; after having fixed the image in the mind as it then appears, at once let him open the other eye, and the difference is at once apparent—let this act be repeated several times, and it will rather surprise those who have never tried it.

Digitized by Google

outset, that the part which is generally supposed to be the "most dry" in all pursuits, is in the microscope often quite as pleasing as the more perfect and far advanced knowledge.

There is now an invisible world before us to investigate. I now propose to take two common and familiar objects to describe and explain, and with this close the present paper. We will suppose it to be spring time, and that we have found the common "Buttercup," (of the *Ranunculus* family), in a ramble through one of the fields. We pluck a flower, it is a common thing having a bright yellow color; well, question No. 1 suggests itself thus—Does the yellow color exist throughout the whole of each of the petals, for they appear yellow on each side?—and so would appear to have this coloring matter running through the whole of the mass of which the petal is composed. We proceed to dissect the petal to ascertain this, a perfect petal is selected, one fully matured, and perfectly clean; this we lay across the forefinger, holding the point with the thumb, and the rounded top of the petal with the second finger, this position keeps the petal quite tight and immovable, then with the other hand (commencing at the point of the petal) the thumb nail is brought on the upper surface so as to "scrape up" a small part of a thin membranaceous covering which exposes a perfectly white surface underneath it; the thin cuticle of this petal is carefully stripped off, and laid flat on a slip of perfectly clean glass, and with a clean camel's hair brush laid down smoothly; if not quite flat in parts but lying in plaits or folds, it is of no consequence as these parts give a very beautiful appearance under them icroscope. We now proceed to examine this object under the microscope, and find it to be a piece of a golden yellow colored network, appearing somewhat like a piece of brass-wire network, highly lacquered, with somewhat rounded interstices (covered over with a yellow film) irregular in shape, size and form, these are the "pigment cells" which give the yellow color to the petal*—but stop, what is this rounded ball of a yellow color, very finely carved all over? What can this be! Well, this is one of the "Pollen

* On examining the petal from which this film was taken, it will be seen to be quite white and colorless, now on turning this over, the other side will be seen to be yellow also, that film again can by care be stripped off, leaving the centre part quite white. The result we arrive at is this, the petal is made up of three membranes (there may prove to be more than three) which may be familiarly described thus—the centre membrane is like a piece of white paper, on either side of which is pasted a piece of yellow paper; such, when divided, being comprised clearly of three distinct layers; such in resemblance is the petal of the common "Buttercup."

Digitized by Google

grains" which has unperceived adhered to the cuticle of the petal, this is again a fine object and well repays a careful examination. Well, what is to be done with this object now we have it, can it be preserved? Oh yes. We will now proceed to describe the manner in which this may be done. It is attached to the glass already, well, it has to be *thoroughly* dried in a gentle heat, in such a position that no dust can get to it, under a glass shade in a warm place for instance, we then get some thin glass used for "covers," (to be bought at any optician's in London), this is made perfectly clean and laid over the object, a piece of green paper is then covered on one side with a smooth coating of gum water and left to dry, when dry a small strip is cut, in the centre a round hole is made large enough to allow the object to be seen through, the gum is now slightly moistened and made to attach the thin cover neatly to the slip of glass, and after writing the name on the glass (or what is better, on a paper label gummed on the slip) the slide is ready for the cabinet. Slides are made three inches long by one inch in width, and can be had at any shop where microscopes are sold, or may be made by the party himself. I shall, in my next paper, say more on the subject of mounting in this form, which is now called by microscopists "dry mounting."

The above plan, in which the Buttercup has been described, is now to be pursued with the *Pelargonium;* one of light pink colour, or one of a deep crimson color, or both, is suitable; here we have a very grand object to examine. Here we find a network of a crimson color, of a somewhat lengthy hexagonal form, the network is formed by veins in a beaded form—as if formed by a number of beads, threaded so as to form elongated hexagons, through these veins no doubt the coloring matter circulates, or if not possessed of the power of circulating, is deposited. Well, inside each of these hexagons is seen a black insect-like-looking form, with lines radiating in every direction from the centre to the edge of each of these hexagonal spaces, somewhat like a spider with a hundred legs, in every direction around the body.

These two objects, although common, may serve to set an amateur to work in mounting the "pigment cells" of plants, the plan here described being suitable for all plants, among which the "pansy" takes a prominent place.

Digitized by Google

Original Articles.

RARE BIRDS OCCURRING NEAR RICHMOND, YORKSHIRE.

By James Aspdin.

Osprey *(Falco haliæëtus)*. A specimen of this bird, which is of rare occurrence in this neighbourhood, was shot by William Prince, gamekeeper to M. Blunt, Esq., whilst it was fishing in the river Swale, about two miles below Richmond, on the 6th of July, 1862. It was a very fine adult male specimen weighing 2lbs. 12oz., measuring twenty-two inches in length, and five feet four inches in expanse of wing.

Buzzard *(Falco buteo)*. A few weeks ago my friend Mr. Harker received from a person at Hawes a very old male specimen of this bird, which was killed by him at Cotter Top, a mountainous moorland near that town, on the 18th of August last. It had been preserved by the party who sent it, who professes bird-stuffing, but was set up in such a ridiculous position that it will be necessary to relax and set it up again to be decent.

Great Gray Shrike *(Lanius excubitor)*. The visits of this bird to this neighbourhood are very rare, but a fine specimen was shot at Sowerby, near Thirsk, on the 22nd of February, 1858.

Bohemian Waxwing *(Bombycilla garrula)*. A fine specimen of this beautiful bird was shot on the "Castle Bank," a steep hill sloping down to the river Swale, and close to the town, in November, 1859, by a person named King.

Crossbill (*Loxia curvirostra*). Five specimens of this bird were shot at Park Hall, near Ruth, on the 5th of March, 1858, by Mr. Martin of that place.

Hoopoe (*Upupa epops*). In October, 1861, a fine specimen of this bird was shot by Mr. Topham's keeper, on Middleham Moor.

Bittern (*Ardea stellaris*). The Bittern is a bird that is very rarely seen or heard in this part of the country, but it appears from a paragraph in the "Richmond and Ripon Chronicle," of February 15th, 1862, that a fine specimen was shot a few days before on the banks of the beautiful and picturesque Lake Summerwater, near Hawes, by Mr. Peter Beresford. The bird fell into the hands of Mr. Edward Chapman, of Caperby, a clever taxidermist, and by him was set up.

Digitized by Google

Spotted Redshank (*Totanus fuscus*). In August last a specimen of this bird was shot at Hornby, near Catterick, by Mr. Savage, of that place.

Green Sandpiper (*Totanus ochropus*). A specimen of this bird was shot by Mr. J. Roper, at Ravensworth, in September last.

Spotted Crake (*Gallinula porzana*). Early one morning in October, 1863, a mutilated specimen of this bird was picked up by a railway guard on the Richmond branch, between the Dalton and Moulton stations. It had evidently been making a passage during the night, and having struck against the telegraph wires thus came by its death. I may here mention that through this cause a great many birds are destroyed on Bowes Moor, a large tract of moorland near Barnard Castle which is crossed by the telegraph wires, and that as many as eleven grouse, together with other birds, have been picked up dead at one time.

Goosander (*Mergus merganser*). This bird, which only visits us during the severe frosts, appeared more plentiful last year than usual. A beautiful male specimen was shot by William Newton, gamekeeper to R. M. Jaques, Esq., at the same pool in the river Swale, and in precisely the same spot as that where the Osprey alluded to above was killed; it was on the 15th of January. It was shot while attempting to swallow a Barbel a foot long, which however proved too much for him as it was found to be tightly wedged into his throat and required some little force to remove it. This bird is now in my possession, admirably set up by Mr. W. J. Milligan, taxidermist, of this town. It weighed five pounds six ounces. About the same time two more birds of this species were killed in this immediate neighbourhood, and on the 5th of March Mr. Savage captured two female specimens in the pipe at the decoys at Hornby, which he sent alive to the Gardens of the Zoological Society, Regent's Park. There was another specimen in the pipe, a large male, but this bird made a charge at Mr. Savage with his bill and powerful wings, and thus escaped from him.

Richmond, January 31st, 1865.

NOTES ON NORFOLK ENTOMOLOGY—LEPIDOPTERA. Part I.

By T. E. Gunn.

At the commencement of these few observations I deem it necessary to say a few words by way of introduction to the reader. The county of

Digitized by Google

Norfolk, as many are doubtless aware, is known to be one of the richest counties in the British Isles for its Ornithological productions; so much therefore being noticed in that department, very few observations have lately been made relating to its Entomology. I will here endeavour throughout these few simple notes to convey to the reader's mind what lepidoptera are to be found in this county, although I am well aware it will be impossible to enumerate the whole of the species inhabiting it.

Norfolk, from the extensive woods, fens, and hedgerows it abounds in, is well adapted for the pursuits of the Entomologist during the summer months, or indeed all the year through, for when the bright and sunny days of summer and autumn are past, the Entomologist's time may be employed in pupa digging during the long and dreary winter months. The village of Horning, situated 14 miles north-east of Norwich, and about the same distance from the sea coast, is a most noted locality for various species of lepidoptera, more particularly *Papilio Machaon*, of which however we will speak more hereafter. I might also mention several other favourable localities, but think it quite unnecessary to do so, as most of my observations are confined to the outskirts of this city within a few miles radius. These notes are arranged in accordance with Mr. Doubleday's Synonymic list, and I omit all those species which are common everywhere.

Diurni.

Papilio Machaon. This insect, which is the largest and one of the most beautiful of our British Butterflies, although not obtained so abundantly in Norfolk as formerly, is still however pretty plentiful, more particularly on the marshes of Horning, where during the summer it is taken in all its stages. I have bred some very fine imagos myself from larvæ taken by a friend in that locality.

Anthocharis cardamines. Common, making its appearance in May.

Gonepteryx rhamni. Not uncommon.

Colias Helice. Rare. A friend gave me a nice pair about three years since, and assured me he had taken them in this county.

C. Hyale. Rare. I have a specimen from an old collection, but am not certain whether taken here.

Vanessa polychloros. Rather uncommon of late years.

V. Io. Plentiful during 1861 and two following seasons, but more scarce during 1864.

V. cardui. Rather rare, I have seen a few specimens.

Digitized by Google

Satyrus Ægeria. Not uncommon in woods.

S. Tithonus. Very common, more particularly so on Mousehold Heath.

S. Hyperanthus. Not uncommon.

Chortobius Pamphilus. Common on Mousehold.

Thecla quercus. Rare. I saw a male in August last, it was resting on the underside of a leaf, I was unable to catch it, having unfortunately left my net behind me, I have one in my collection taken a few years since.

Polyommatus Phlæas. Not uncommon on heaths and meadows from April to September.

Lycæna Ægon. Uncommon. I have one example which I obtained with *L. Alexis* during last August.

L. Alsus. Rare. I remember a few specimens being taken in a meadow at Ketteringham about four years ago.

Syricthus alveolus. Uncommon.

Thanaos tages. Rather uncommon, I have seen a few examples.

Hesperia Sylvanus. Not uncommon,

H. linea. Not uncommon.

THE ENEMIES OF THE LARVAL FROG AND TOAD.

By J. Hepworth.

In No. 5 of "The Naturalist," page 75, I gave a short list of animals that I had found to be exceedingly destructive to the immature frog and toad. With your permission I will again return to the subject, and give a few details which may possibly interest some of your readers, and perhaps, which is more desirable, turn the attention of others to the—shall I say beautiful?—yes, to the beautiful though greatly ignored inhabitants of our wayside ponds.

How many thousands of our fellow men are suffering from that almost incurable disease, "ennui,' or are wandering away from their homes to the public-house, and thence to the gaol and the hulks, because, forsooth, they can find nothing upon which to expend their profound thought! What can be done for such men? Is there no "dead fly in the window," or live one in the treacle pot—no mummy pigeon in the attic or slimy snail in the cellar—no spider on the ceiling or cricket on the hearth—no maggot on the cheese or aphis on the rose? Is there not one of these to

Digitized by Google

attract his lack-lustre eye—no wood, no field, no pond from which he may gather or dredge up some potent charm to liberate his enthralled mind? Surely if such a one would but gaze around he would find food for thought, and motives for recreative exercise in the objects with which he has so liberally been surrounded. The mind once awakened would soon free itself from lethargy, and the public-house would speedily lose its charms.

But to return. During the months of April, May, and June I kept a large stock of tadpoles in my aquarium. These I had to replenish, or rather renew almost weekly from a neighbouring pond. In these tadpole-hunting expeditions I usually took with me a small wide-necked bottle (capacity nearly half-a-pint) which I filled one-fifth or one-fourth full, or more. These I emptied into the aquarium at about three times. My live stock consisted, at this time, of three Newts (two specimens *Triton aquaticus* and one *T. palustris*), one Stickleback (*Gasterosteus aculeatus*), two Bearded Loaches (*Gobitus barbatula*), one larva of *Libellula* or Dragon Fly, two *Notonectidæ*, or boat flies; a few water beetles (*Dytiscus marginalis*), and the water Scorpion (*Nepa cinerea*). In addition to these, and of a more harmless kind, being phytophagi or plant feeders, I had a number of Caddis worms *(Phryganea,)* and a number of mollusca—univalve and bivalve—and others.

Of the first-mentioned group it is not easy to decide which is the most destructive to the young frog; but I think other observers would bear me out in saying that to the *Libellula* belongs that honour.

This insect belongs to the Isomorphous group, Nat. Order Neuroptera; it is consequently active in all stages of its existence. The imago deposits her eggs upon some aquatic plant, where they remain till hatched. The larva, which differs from the imago principally by the rudimentary state of its wings (represented by small lobes), is aquatic. It is fierce, strong and, it may be added, cunning. Its respiratory apparatus is partly lodged in the end of the intestinal canal. Into this cavity water is drawn, by the expulsion of which the animal moves forward in a series of jerks. It does not often move, however, only occasionally changing its base of operations. Here it rests with its caudal extremity exserted from the water, thus being able to breathe without the necessity for moving. It will remain thus for hours waiting the approach of its prey, for it seldom or never gives chase. Woe to the unwary animal that passes too near this lurking foe. Its large prominent eyes never fail to see, or its viosr-

Digitized by Google

like two-handed labium to seize its victim. Once caught, fruitless are all endeavours to escape. Nothing remains but inevitable death. The specimen in my possession was a great slaughterer of the poor tadpole. Often have I seen them when sailing near, seized by this carnivorous little insect, and struggling violently for life but all in vain. The insect, having made an incision and bared the flesh on one side, would turn him round by means of the hand-like processes, before alluded to, with as much ease and precision as a man-cook would handle a joint of meat. It required several "taddies" to sate his appetite. The active pupa arriving at the period of change ascends some plant on the bank and bursting its tight-fitting coat creeps forth, leaving its late dress perfect, even to the eyes, antennæ, and claws. This skin may be, and often is, picked up as a live larva, the mistake not being discovered till by a slight pressure it collapses, to the astonishment of the non-entomological beholder. Such indeed was my first introduction to this insect. The imago rests a few moments with expanded wings in order to dry and give them the necessary rigidity; it then commences its aërial life. In this last stage of existence it preys upon other insects, which it rapidly pursues and takes upon the wing. It is popularly known as the "Horse tang," or Horse sting; a title that is altogether unjust, as in common with other members of *Neuroptera*, it possesses no sting. How many such mis-nomers have been given, and libellous statements made, with reference to this and other members of the animal kingdom! It were of little consequence under what name they were known, were it not that they are daily made to suffer the pangs of martyrdom for the mistaken notion that they are what their names indicate, or what the ignorant declare them to be. We are daily through ignorance, often wilful, killing those creatures that by faithfully discharging their duties in the economy of nature, are conferring blessings upon us, none the less because unknown and unrecognized.

Next in order of destructiveness, we may, perhaps not very wrongly, name the *Dyticus*, larva and imago. Whether the "bumps of destructiveness" of this little creature are more than ordinarily developed, we may, perhaps, profitably leave to the decision of that enlightened phrenologist who carefully mapped out the head of a hair-covered turnip, and gave a clear and precise account of its various powers—mathematical and otherwise. Whatever *his* conclusion may be we can confidently affirm, from observation, that it plays sad havoc among the "toe-biters," or tadpoles, and other aquatic animals. It generally seizes the young frog by the tail,

Digitized by Google

and with its truly formidable mandibles makes an incision at the tail-root, and slowly, but surely, scoops out the viscera, in spite of the struggles of its victim, which evidently does not approve this method of being ushered into the "land of the hereafter." The tadpole is liable to these attacks even after acquiring the adult form before leaving the water.

The larva of this insect is even more destructive than the imago; I have seen it do battle with all comers; and more than once I have seen the pugnacious little stickleback succumb to his superior prowess. So great were the powers, and so freely and persistently were they exerted, that in order to prevent my aquarium from becoming a watery desert, I deemed it necessary to consign him to the *liquor potassæ* and prepare him for the microscope.

I know no creature that presents a more "horrid front" to the beholder than this larva. See him suspended, as it were, from the surface of the water by his two-pronged tail—his body gracefully curved—his feet extended—his little eye glaring fiercely—and his immense jaws thrown widely back. His whole demeanour betrays the bloodthirsty warrior. He is always armed and ready for the conflict. Once having caught hold of his prey he is not easily shook off. I remember on one occasion when he had caught a stickleback of medium size, having fixed his jaws in, just behind the gills, I lifted the fish out of the water by the tail, and held it suspended some time, the little water tiger maintaining his hold for some minutes, but the changed element not suiting his constitution he let go and dropped back into the aquarium. The imago attacked and destroyed worms put in for the newts. I kept four for more than six months and fed them weekly on raw butcher's meat. Cooked meat they passed by with contempt. They did not even relish raw meat so well as worms or tadpoles secured by their own valour.

The boatfly may fairly be ranked next. It is very destructive to the tadpoles as also to other insects—larva and imago. It is a beautiful object for the aquarium. The large oar-like posterior pair of legs—large prominent coloured eyes and close pressed wings command the attention of those even who feel no interest in natural history pursuits; while the boat-shaped body, peculiar mode of sailing on the back, and general structure, give it a claim to the attention of the scientific naturalist.

Several parts of this insect form beautiful objects for the microscope. The wings are very pretty and distinctive. The legs mounted upon a slide beautifully illustrate the change which these organs undergo in

Digitized by Google

order to adapt the insect to aquatic life. The anterior pair are short and strong—the middle pair much longer and slightly covered with hair, the tarsi being terminated by two long sharp claws—the posterior long and very strong, and covered on opposite sides with long hair, giving them much the appearance of oar-blades. By powerful strokes with these they are able to dart most rapidly through the water, rendering their capture no easy matter. The legs of aquatic beetles undergo similar modifications.

The eye again is beautiful, showing, when under the microscope, the hexagonal facets most distinctly.

It is most interesting for any one of a contemplative mind to sit upon the margin of a retired pond, on a beautiful summer day, watching the movements of its inhabitants. When tired of gazing he will recline on the grassy sward and from the scene before him he will conjure up others of grander proportions. The Newt will assume the bulk of the Cayman—the Stickleback the dimensions of the giant fish of other climes. He will revel in the midst of tropical scenes. If he be a Geologist—from the small Newt he will wander back to long bygone ages—he will see the huge Enaliosaurians gliding about the waters——the Pterodactyle

> With two huge and dusky pinions,
> With a bosom smooth and rounded,
> With a bill like two great paddles,

soaring majestically through the air, and the immense Chelonians browsing on the luxuriant tree ferns. The frog will bring before him the Labyrinthodon, that giant Batrachian, that formerly walked over the sands of seas occupying the greater portion of that part of the world now inhabited by Englishmen. The "bullhead," or "miller's thumb" (*Cottus Gobio*), with erectile cephalic spines, will take him back to the seas of the Devonian age, He will see the Pterichthys, Coccosteus, and Cephalaspis, with a thousand other mail clad warriors, desporting themselves gaily in those ancient seas. "These, and far more than these," beholds the Geologist in his waking dream. His mind wanders through unnumbered ages of the past, and through untold periods of the future.

Wakefield, January, 1865.

Digitized by Google

CONSIDERATIONS ON THE TERM "*SPECIES*" APROPOS OF A NEW WORK BY M. JORDAN.

BY FRANÇOIS CREPIN,

Professor of Botany à "l'Ecole d'Horticulture," Gand.

During the last century, Linneus, in face of the chaos bequeathed to us by the ancients, cast his scrutinizing eye over the animal and vegetable world, and laboured to unravel their apparent confusion; he divided the organic creation into groups of different values and importance, and distributed them into orders, sub-orders, genera, and finally into species. Later, he found that the greater divisions were defective, and they were modified; the genera, in their turn, or at least a great number of them, were also altered, reduced, augmented or dismembered. There was nothing extraordinary in this, for the groups being systematic, were often arbitrary; it was part of their destiny to vary. Such as are now established, in our day, will not always remain so; for future classifiers will find that their studies will be simplified by modifying them afresh, or that in modifying them they will approach more nearly to the plan which nature seems to have adopted. At present Linneus is almost cast out of sight in our modern classifications. His genius foresaw, but did not discover, the natural method of which we are so boastful; his system was bad, and no regret ought to be felt that it has been thrown aside. But was the illustrious Swedish reformer more skilful in forming his species? Until recent times this has generally been admitted, and in a small number of fixed types, it has always been believed that he was happy in defining and limiting the species. It appears, however, that M. Jordan does not partake of this general opinion: take his own words:—

"The vegetable forms which have occupied our attention have been hitherto neglected.....The earlier botanists, confining their attention to those plants which appeared interesting, either on account of their utility or gracefulness, described but a very restricted number of species. Linneus only admitted to the rank of species those forms which could be distinguished at first sight, and of which a description was easily made. The result of this is that the greater portion of the Linnean species, are rather assemblages

Digitized by Google

of species than of individuals; they are the primary groups which should be established by the comparison of similar forms, and not true species. The greater number of descriptive botanists and monographists since the time of Linneus, and more particularly the authors of the great systematic works, like him, have established nearly all their species from materials found in *herbaria*, and on very insufficient data. The limits which they have assigned to them are in general purely arbitrary. Further, the specific types admitted by them, do not at all correspond with the reality, and may be fitly compared to landmarks placed at nearly equal intervals to mark out a new route"[1]

Evidently there is some truth in these remarks, for Linneus and those who have followed his method of determining species, were not in the possession of any good criterion wherewith to test the truth of their creations. As M. Jordan well says, in admitting to the rank of species only those which might readily be distinguished at first sight, and of which the description was easily rendered, have they not, in a great number of instances, united together many distinct forms, which instead of constituting species by their union, ought to form groups of species? That this should be so is very possible: the botanist of Lyons is profoundly convinced that this is the case with the great majority of the old types, and thus he is led to divide a large proportion of them into a more or less considerable number of new species. Linneus, therefore, could not have known what constituted a true species, but took for such what afterwards should become generic groups: the botanists of the last century, and those too of our own, who have followed in the Linnean errors, must only have arrived at the genera, and have left for our task to discover, by a more delicate analysis and research, what is a veritable species. This is a progression which need not surprise those who have attentively followed the constantly ascending path of the experimental sciences. In chemistry, have we not seen an analogous progress realized; substances which for a long time had been considered as simple bodies, having been shewn in later times to be really compound ones? All then should be reformed; our *Floras*, our species, and even our genera, must again be weighed in the balance, and completely re-founded.

Already, for several years, the work of reformation has been going on, though timidly; but now M. Jordan has strongly shaken the ancient edifice. He first demolishes it, and then proceeds to rebuild it again, making use of but little of the old materials. He makes a revolution, in the full force of

(1) Diagnoses, p. 11, 12.

Digitized by Google

the term, as any one may be readily convinced, by simply casting his eye over the table of species in the first part of the first volume of his new work, entitled "*Diagnoses d'especes nouvelles ou meconnus pour servir de materiaux à une Flore reformée de la France et des Contrées voisines*"[2] One is literally astounded on considering the great number of types, altogether new, described in this volume. When we reflect on this prodigious augmentation of 274 new species for 29 generic groups alone, we ask with astonishment to what enormous figures the flora of Europe, or that of the entire world, must be raised, when all the forms of equal value with those described in the *Diagnoses* are recognised and determined; we scarcely dare to think of it. M. Jordan seems to have foreseen the astonishment which his work was calculated to produce, for he says in his preface:—

"On the appearance of so many new species, almost all observed in France, a country the *flora* of which passes as perfectly known, many persons will be unable to repress a feeling of distrust, or to say the least, of a certain amount of astonishment. There is no doubt, among Botanists, a certain number who have, after our example, advanced some steps in this way of criticism, in which experiment always serves to guide and control analysis. These have already conceived the extent of the field before us, and will not be surprised at a result which they could foresee; but others, who are not yet initiated in this kind of study, or whose researches have been in quite a different direction, will be somewhat scandalized with such a result, and will even believe themselves transported into the realms of fancy, where arbitrary conceptions, and simple hypotheses, are made to appear as real facts. We consider ourselves bound, then, to dissipate this distrust, by a clear and frank explanation of the path we have followed, and the end at which we aimed and have attained to."[3]

For ourselves we are neither astonished nor scandalized at such an avalanche of new creations; we could foresee the result as soon as we found out the criterion of the new school, and above all, the manner in which the criterion was to be made use of. What then is this criterion? We will again refer to M. Jordan's book, and it will furnish the answer:—"Let us say, at the outset, that we have not for one moment quitted the region of positive reality; also that it is not hypotheses, but material facts that we have to produce. It is not a certain method of observation, nor a certain

(2) One vol., large 8vo. of 355 pages. Lyon, 1864.

(3) Loc. cit., p. 5, 6.

Digitized by Google

opinion, that we have to explain; but well and firmly established facts, obtained by the ordinary methods of experiment, and which we fearlessly submit to the examination of all friends of science. We have simply to expound what we have seen, experimented on, established; that which those who feel themselves most strongly disposed to contradict us, might have seen and established as well as, and perhaps better than ourselves, had they undertaken the same researches and the same experiments, with similar materials. Indeed it is easy to understand, that when there exist, among plants observed in the living state, and under perfectly analagous conditions of development, manifest and easily recognisable differences, for any one who is capable of an attentive examination; to ascertain these differences is to ascertain a material fact, upon the reality of which there cannot be two opinions. To ascertain again, that these differences, visible one year, are still visible the following year, and every year, is also a material fact of the same nature as the preceding one. Lastly, to ascertain that the differences constantly offered by divers individuals when compared together, are equally observable in other individuals, the produce of the former, that they are reproduced hereditarily and invariably during a succession of generations, is still proceeding in the examination of a material fact, by searching whether it does or does not exist. Upon such a fact, properly observed, it is quite open for men of good faith, to differ in opinion as to the consequences which they may draw from it, but not as to the reality or non-reality of its existence. The species we propose are nothing more than certain vegetable forms, which we have learned to distinguish the one from the other, by a comparison, in the living state, of all their organs, and by assuring ourselves, by the most rigorous observations, that their differences are hereditary, and not the result of accidental or local causes. We say this of the great majority of our species; as to the rest, we have judged them by the analogy of their characters, with those we have been enabled to submit to experiment."[4] Thus, then, the sole criterion admitted by M. Jordan, is the persistence of characters or differences, continued in seed, by generation. Every form which is preserved *invariable* for a certain number of generations, is to him, a veritable species, it mattering little if the differences which distinguish it from its congeners be reduced to a mere trifle. To give his theory in a few words, as we read in his book, the forms which remain stable after a culture of five, ten, fifteen, or twenty years, are considered by him as distinct specific types. We say five to twenty years

(4) Loc. cit., p. 6, 7.

Digitized by Google

for he himself reminds us, that his most prolonged experiments have not extended over a longer period than this. We may note—in passing—that some species have not been subjected to experiment, and that for many the proofs have been of short duration.

(To be Continued.)

Observations.

A Hint to Keepers of Seals and Otters.—Last autumn two young otters were caught by a fisherman who took them home and endeavoured to keep them alive until I should be able to prepare a suitable place for their reception. My injunction that their food should be given to them outside their cage, not upon the hay, &c., which formed their bed, was at first strictly obeyed, but at the end of about three weeks the precaution was neglected, and very soon afterwards word was sent to me that one of them was dead. On examination the stomach was found greatly distended with a large compact mass of hay and wool, and one still larger was contained by the stomach of the second otter which died a few days afterwards. A tame seal which was kept at Baltasound some years ago and died from a cause which could not at the time be explained, was found to have the stomach similarly distended with straw and heather, which had accidentally been introduced with the food. The ill success which so frequently attends the many attempts to rear these animals in confinement may doubtless be attributed, in many cases at least, to the want of proper care in keeping the food from contact with the litter.—Henry L. Saxby, M.D., Baltasound, Shetland, Feb. 22, 1865.

Occurrence of the Rednecked Grebe, at Church.—As a young man named Thomas Savage, was returning from work on February 10th, by the Canal Bank, Church, he perceived some boys throwing stones at a bird in the canal. The bird appeared to attract the boys' attention very much, by diving down in one place and making its appearance in another. One of the boys struck the bird with a stone which killed it. Savage got it out of the canal and brought it to Thos. Jones, Church, for preservation. The bird proved to be the Rednecked Grebe, *Podiceps rubricollis*, in winter plumage.—Sydney Smith, Church, near Accrington.

The Rednecked Grebe.—A fine specimen of the Rednecked Grebe,

Digitized by Google

Podiceps rubricollis, was brought to me yesterday. It had flown against the telegraph wires near here, and was picked up apparently uninjured, at all events it seems very lively to-day, and has eaten half a dozen small fish—it is very cross, and pecks savagely at any one who goes near it. I think the occurrence of this bird so far inland and from any large sheet of water worth recording. A week or two ago, I had a Woodcock brought me which had killed itself by flying against the wires near the same place—and not long ago, a Spotted Crake under similar circumstances.—W. CHRISTY HORSFALL, Horsforth Low Hall, near Leeds, Feb. 15th, 1865.

Podiceps cornutus, &c.—At Cookham last month, was shot a fine male of *P. cornutus*. *Picus major* and *minor* have also been got. A beautiful white stoat was shot towards the beginning of the month. *F. spinus* has not been nearly so common here as usual. *F. carduelis*, *F. linaria*, *F. montifringilla*, have been in great abundance. The larks suffered severely in the snow, and a great many fieldfares and redwings were starved out.—R. B. SHARPE.

Fresh Water Mollusks.—In the second week of January, in the present year, I, along with a friend, took a walk towards Swellington Bridge; when we arrived at a place called Waterloo, about two-and-a-half miles from Leeds, there was a shallow running stream of water in which we cast our net, and ran down the stream for about twenty yards and back, then withdrew it, and were much surprised at the great number of shells we secured. We divided them and I was so curious as to count my lot and found I had got upwards of two dozen *Limnæus palustris*, one-and-a-half dozen of *L. pereger*, and upwards of 200 *Planorbis complanatus* (Linné); some of those last named are very curious ones, being twisted like a corkscrew, some have open whorls and some with the inner whorl edge upwards, and many other monstrosities; any gentleman in want of *Planorbis complanatus*, as I have a few dozen to spare, can have them sent by paying postage, &c.—J. BLACKBURN, 42, St. Mary's Street, Mabgate, Leeds, Jan. 26th, 1865.

SCOTTISH SUMMITS.—No. IV.

(BEN LAWERS.)

July 9th, 1864. Ben Lawers, my last climb, is the highest mountain in the county of Perth, and overhangs the beautiful Loch Tay. It is composed, like so many others, of micaceous schist, but its surface is remarkably verdant, and perhaps no mountain in the Highlands is richer in Alpine plants. Its height is 3984 feet. My starting point was

Digitized by Google

Killin, a pretty little village at the foot of the Loch. Skirting the lake for a considerable distance, I diverged to the left after a walk of six miles, and here the true ascent begins. Near Killin I noticed abundance of the Sweet Cicely (*Myrrhis odorata*) and a local thistle (*Carduus heterophyllus*). The Scottish Asphodel (*Tofieldia palustris*) I am told grows near Loch Tay. I did not, however, meet with it. The lake was quite fragrant with the flowers of the *Glyceria;* and the music of the sedge warbler, that sung among the reeds, added much to the pleasure of an evening sail. On my way to Ben Lawers, I saw the pretty fawns of the Red Deer, trotting away as soon as I approached. The herd, which is quite wild, is the property of the Marquis of Breadalbane. The *Anacharis alsinastrum*, that has appeared so mysteriously in our rivers and canals within the last twenty years, seems to have taken permanent possession of the sandy bed of the river Dochart, and threatens to choke up eventually the shallow feeder of Loch Tay. I had now reached the place where the ascent begins. On the grassy slopes of the mountain, there was plenty of the Field Gentian (*Gentiana campestris*) which is easily distinguished by its two large over-wrapping calyx-segments. I picked up several white varieties of this beautiful plant. *Gentiana nivalis* I did not see, though it is said to occur on Ben Lawers. The Mountain Pansy (*Viola lutea*) was growing intermixed with the Field Gentian. The leading features of this pansy are to be sought in the pinnatifid stipules and simple stem. The Bladder Fern (*Cystopteris fragilis*) was plentiful in the neighbourhood of Killin, in all its protean forms; and Ben Lawers is the home of the rare *C. montana*, and though the localities have been sadly rifled by rapacious collectors—still Glen Lyon offers it an asylum, where it flourishes on inaccessible ledges for the full space of a quarter of a mile. Around the Ordnance Cairn at the top, a strange little plant—*Cherleria sedoides*—was growing in moss-like tufts, looking very pretty in the sunshine. A large patch of frozen snow still lay on the side that faces the north, and very refreshing I found it, after my steep climb on the most sultry of summer days. On the very borders of the snow grew the lovely Alpine Forget-me-not, (*Myosotis alpestris*) whose bright blue flowers were a great treat to me in these upper regions. *Cerastium alpinum*, that I had previously noticed on Ben Lomond grew here most abundantly, and was flowering in perfection. Fine large yellow-belted Syrphus-flies, which I take to be *Sericomyia borealis*, were rushing about in every direction, humming

Digitized by Google

almost as loudly as the Tabanus.—PETER INCHBALD, Storthes Hall.

Notes and Queries.

Ferrets.—I should esteem it a favour if any one would kindly inform me what is the disease so prevalent among ferrets. Three cases have come under my notice in the last fortnight. The ferrets in question had been kept scrupulously clean, as might be seen by the state of their feet, and the sickness commenced with severe shivering, and they seemed to be attacked with, what we should call in human beings, bronchitis, accompanied by severe swelling of the eyes, which discharged a great deal of matter; and, notwithstanding constant bathing, this never seemed to decrease. The ferrets had been hunting with a strange ferret who had the disease. This one is dead, and the other two were soon after seized with the complaint, one is dead and the other not likely to recover.—R. B SHARPE, 186, Strand, W.C.

The Natter-jack Toad.—A friend informs me that the Natter-jack Toad (*Bufo calamita*) is not of unfrequent occurrence in the neighbourhood of Ormesby, near Yarmouth, in Norfolk.—T. E. GUNN.

Exchange.

Lepidoptera.—I have the following insects for which I shall be glad to receive offers of exchange:—*P. Machaon, A. Paphia, A. Adippe, V. Atalanta, S. Tithonus, H. Sylvanus, H. linea, Z. loniceræ, Z. filipendula, E. Jacobeæ, E. vespertaria, N. zonaria, B. hirtaria, B. repandata, S. Belgiaria, A. ulmata, H. progemmaria, L. multistrigaria, E. nanata, C. tristata, D. vinula, C. curtula, C. anachoreta, N. camelina, C. diluta, B. perla, L. pudorina, L. phragmitidis, G. flavago, D. pinastri, C. cubicularis, A. porphyrea, L. janthina, T. fimbria, T. orbona, N. glareosa, N. augur, N. plecta, N. brunnea, N. Baja. A. rufina, C. vaccinii, P. chi, M. oxyacanthæ, A. aprilina, P. meticulosa, A. nebulosa, H. Pisi, A. myrtilli, B. parthenias, M. maura,* and *E. glyphica.*—C. SMETHURST, 19, Wellington Lane, West-Street, Leeds, March 3rd, 1865.

Lepidoptera.—I have the following insects in good condition to exchange for birds' eggs or birds' skins:—*C. Edusa, A. Euphrosyne, A. Iris, S. Ægeria, S. megæra, H. Semele, T. quercus, T. pruni, T. betulæ, L. Alsus, L. Corydon, L. Arion, N. Lucina, S. alveolus, T. tages, H. paniscus, H. Sylvanus, H. comma, H. linea.* Most of the above are in pairs. I shall be glad to purchase skins of any of the accipitres.—R. B. SHARPE, 186, Strand, London.

Shells.—I have the following land shells for exchange:—*Bulimus Lackamensis,* alias *montanus, Achatina acicula, Cyclostoma elegans,* &c., &c. The REV. J. E. VIZE, Bath.

Digitized by Google

Original Articles.

RECENT CAPTURE OF BIRDS IN NORTHUMBERLAND.

By T. H. Gibb.

Blackthroated Diver *(Colymbus arcticus)*.—I have before me a very fine specimen of this bird captured on the 1st instant on "Rondicar," a reef of rocks jutting out on our adjacent sea board. Its plumage still retains here and there a trace of the beautiful summer dress. The forehead, crown, occiput, and the nape of the neck down to the anterior part of the back is one uniform steel grey tint. The middle and posterior regions of the back, dark grey, intermixed with irregular patches of ebony black. The scapulars abundantly dispersed with black feathers, on the tips of each of which are placed two longitudinal spots of vivid whiteness. The tail feathers ovate, and slightly acuminated, of a dark grey, nearly approaching to black, and margined with white. Upper tail coverts dark—wings same colour as the back, their secondaries and upper coverts tipped with two round white spots. The lose ear coverts, throat, breast, sternum and abdomen, pure white, sides of the body dark margined with white; under wing coverts white; tarsus a very pale yellowish blue on the inside—outer portions dark brownish grey; toes and web same as inside of tarsi; length of bill from the angle of the mouth, three-and-a-quarter-inches; upper mandible, black, inclining to a blue slate coloured grey at the base; lower mandible, blue grey, approaching a flesh tint at its junction with the chin. Total length twenty-six inches; weight, three pounds eleven ounces.

Colymbus arcticus is a rare visitant on the Northumbrian coast, and is seldom seen except after severe gales from the North-east. In the winter of 1862, an individual was shot in the Tyne above Newcastle, and Mr. Pape, game dealer of that town, recollects purchasing one in the flesh in the summer plumage many years ago, but I am not enabled to give the date of its capture.

Great Crested Grebe *(Podiceps cristatus)*.—About the middle of last month, one of these graceful birds was secured near to North Sunderland. At the same place, and about the same period, a male Tufted Duck *(Anas fuligula)* was killed, and a few weeks previous to this, a very beautiful adult male Goldeneye *(Anas clangula)* fell to the gun of a fisherman. This is a charming specimen, being fully matured and very perfect in plumage.

Digitized by Google

Sparrow Hawk (*Falco nisus*).—In November last, one of these daring little fellows was captured at Alnmouth, in a very singular manner. It pursued a sparrow into a joiner's shop, in which two workmen were engaged, who immediately giving chase, caught the bold intruder before he could make good his escape. It proved to be an immature male, possessing that rich russet brown tint, which I think excels in beauty the plumage of his elder brother the mature bird. The total length of this bird is fourteen inches, wings nine inches, which is perhaps rather above the average size.

Alnwick, March, 1865.

THE ORIGIN OF HÆMATOZOA IN THE HUMAN AND ANIMAL SYSTEMS.

By Edwin Foxton-Firby, F.A.S.L., &c.

Very recently I was much interested in an examination of those curious parasitic animalcules frequently found in the blood of mammiferous animals, of birds, fishes, reptiles, and even in many of the invertebrata; hence their distinctive name Hæmatozoa, from Greek *haima*, blood, and *zoon*, a living being. They have not, I believe, been found to possess reproductive organs, and whether they propagate by spontaneous fission, or by vesicular encystation, or by the elimination of gemmules from the parent body, similar to the mode of gemmiparous reproduction observed in the fresh-water polyp or hydra, I cannot indeed decide; but I may observe that they are generally of such infinitessimal minuteness, as to be difficult of inspection without microscopic aid. Some privileged few are said to attain to a pretty large size, and to be in possession of organs of reproduction, but these individuals are restricted to some special part of the body. The variety called *Distoma hæmatobium* is only to be discovered in the abdominal venous system; while another variety of these minute animal organisms is solely confined to the equine abdominal arterial system—the said system of the horse appearing to be its sole habitat. That known under the name of *Pseudalius filum* is restricted to the pulmonary artery and its ramifications in the porpoise. There is much uncertainty amongst naturalists attaching to the origin of these entozoa, but it would seem highly probable that they are conveyed into the blood by the larvæ being swallowed in turbid water. It has been even said that they are the larvæ of a worm living in the organs immediately

Digitized by Google

surrounding the vessels, but this does not appear very likely to be the case. Specimens of entozoa, discharged through the urethra of a young man, were some years ago exhibited before the Entomological Society of London. Among the human hæmatozoa, the most important is the variety before mentioned *(Distoma hæmatobium)*, which has only been observed in Egypt. The liver-fluke *(Distoma hepaticum)* has occasionally been found in the interior ramifications of the portal vein. Those hæmatozoa found in tumours and other morbid excrescences, appear undoubtedly to have been conveyed there by the circulating blood. The liver-flukes *(Distoma hepaticum)* which I examined, were taken in prolific abundance from the veins in the liver of a sheep. I do not remember ever having seen so many taken from one animal, as in this instance. In colour they were of a very dark brown, almost approximating to a black tinge, and soon showed no symptoms of life when taken for a few minutes from their proper element. It does not appear from all I can hear on the subject, that these parasitic entozoa, by their presence often in great quantities in the arteries and veins of a sheep, affect the health of the animal to any appreciable degree. This may, in part, be attributable to the suctorial appendages of the parasite, which are subservient to the functions of an oral aperture or mouth, and cannot therefore in any way injure the delicate lining of the hæmatoid ducts and veins. It may not perhaps be generally known that the very common disease among sheep, known as giddiness, or water in the brain, proceeds from the formation of a hydatid *(Polycephalus ovinus)* in the brain, and is of frequent occurrence in oxen, sheep, and other ruminants. It often occurs in one of the lateral ventricles of the encephalic mass, and occasions a kind of vertigo, the poor animal turning round and round in a lateral direction, generally on the side where the affected part is afterwards found to be situated. Hydatids are a species of entozoa, and were first discovered by Hartman in 1686, to be distinct parasitic animal organisms. In appearance the hydatid, or acephalocyst (Greek, headless bag), is a mere cystic tumour, filled with a fluid that is always, in a proper hydatid, colourless and clear as crystal. It ranks as the most simple of the entozoa.

Grewelthorpe, near Ripon.

Digitized by Google

SPONTANEOUS EXOTICS.

By James Britten.

(*Continued from page* 266.)

Order XIV.—Malvaceæ.

Lavatera trimestris, D.C. Is recorded by Winch from the ballast-hills of Tyne and Wear. A native of the South of Europe.

L. Olbia, L. Sprang up plentifully, and in a somewhat remarkable manner, in Epping Forest, some years ago. The following account of its appearance is given by Mr. Doubleday in the *Phytologist* for 1842. "A few years since, a new piece of road was made through Epping Forest to Woodford. At a spot called Fairmead Bottom a large quantity of earth was dug from the forest and thrown up to raise the road, for the distance of about half a mile. The following summer the sides of this piece of road were covered with various plants, such as *Senecio Jacobea*, thistles, &c.; and among them a great number of plants of *Lavatera Olbia*, a species not known, I believe, as a native of Britain. There is not the slightest doubt that the seeds had been buried for a vast number of years, and vegetated when brought to the surface, as it seems impossible for the plants to have got there in any other way. For three or four years they seemed to flourish, and flowered abundantly; but now the banks have become covered with grass, &c., they seem to be disappearing, and last year I could only find three or four plants. When I first noticed it, there were hundreds scattered along the whole length of the raised portion of the road." *Phyt, i.* 265. *N.S.* It has now probably entirely disappeared from this locality. Mr. Irvine collected it on the waste ground at Wandsworth steamboat pier (*H.B.P.* 747.) A native of France, &c.

L. alba, Mr. Lloyd observed this "growing by the side of the road between the town and the back gate of the Botanic Garden, Cambridge. *Phyt., ii.* 446. *N.S.* I am uncertain whether the white-flowered variety of *L. trimestris* is included under the name, or whether *L. Olbia* may have been meant; as I do not find *L. alba* as a species in the works to which I have referred.

L. cretica, L.? Is recorded doubtfully by Mr. Irvine from the Wandsworth steamboat pier locality in *H.B.P.* 747. A native of Crete.

L. punctata, D.C. Reported by Mr. Irvine from the same locality in *Phyt., iii.* 319. *N.S.*; and doubtfully in *H.B.P.* 747. A native of Italy.

Digitized by Google

Hibiscus Trionum, L. This common garden annual occurred about 1852 "on a new quay at Wandsworth; J. T. Syme, in *Phyt.*, *iv.* 862. *O.S.*; elsewhere called the Wandsworth steamboat pier locality. A native of Italy.

H. vesicarius, D.C. Found by Mr. Irvine at Wandsworth steamboat pier. *Phyt.*, *iii.* 339. *N.S.* A native of Africa.

Order XVII.—HYPERICACEÆ.

Hypericum anglicum, Bert. This is one of the "doubtful species" of the *London Catalogue*, and it may with reason be doubted whether it has ever occurred in England, save in gardens. It is the *H. elatum* of *English Botany*, and the *H. grandifolium* of Choisy: and has frequently been confused with *H. Androsæmum*, and *H. hircinum*. Mr. J. T. Syme in *Phyt. iv.* 120. *O.S.* thus directs attention to it: "A *Hypericum* appearing to be this species, was observed by Dr. Balfour in large quantity, apparently wild, on the banks of the Glaumire River, near Cork; the plant had also been seen by Mr. Sibbald at Agbada." Professor Babington, however, is inclined to consider the species here found as *H. hircinum*. Mr. Isaac Carrol, in *Phyt.*, *v.* 77. *N.S.*, remarks, "I have long observed this plant on walls by the road under Lota Wood, Glaumire, Cork; but do not think it can be a native; and this locality may be in close proximity to the one above-mentioned. In 1855, Professor Babington again brought forward the claims of *H. anglicum* to be considered as a British plant, in a paper, read before the Linnean Society, of which the following summary appeared in *Phyt.*, *i.* 117. *N.S.* "Mr. B. is disposed to think that the true *H. anglicum* of Bertolini still exists in Britain: a specimen agreeing with it in character was found by Mr. T. Polwhele about Falmouth harbour, Cornwall; and specimens of the same kind are in Dr. Balfour's herbarium, gathered by him on the banks of the Crinan Canal; Galway, Ireland, [in 1833]; and Culross, Perthshire, in [1838]. *H. anglicum* is represented in *English Botany*, *t.* 1225, under the name of *H. Androsæmum*." Mr. Gifford, at page 518 of the same volume, quotes a letter from Miss Warren, having reference to its occurrence at Falmouth, in which she observes: "The idea of *H. anglicum* being a *Cornish* plant is now, I think, entirely set at rest. It has been proved to be *H. hircinum* in every locality in this neighbourhood where found by all explorers, and the same as yours, which still keeps its ground at Swanpool." With reference to this quotation, Professor Babington remarks, "I cannot agree that 'the idea of *H. anglicum* being a Cornish plant is entirely set at rest.' Unfortunately, I do not possess the means of communicating with Mr. T. R. Polwhele, and so cannot learn

Digitized by Google

from him the exact place at Falmouth where he gathered the specimen now before me. That specimen is certainly not *H. hircinum* (which I have also received from Falmouth), differing in its leaves, and especially in its calyx, from that plant." *Phyt., ii.*, 251. *N.S.* The *E. B.* figure was made from a plant found in Haughley Woods, Norfolk" (*Bab. Man. ed.* 2. *p.* 61); but as *H. hircinum* is also recorded from the same locality, it is quite possible that a mistake may have here, as elsewhere, occurred between the two species. Mr. Syme, in *E. B. ed.* 3. *ii.*, 145, states that he has specimens from Arran (Dr. P. W. Maclagan) and Torquay, Devon (C. Eyre Parker); Dr. Arnott, in the *British Flora*, gives the following localities: "Cliff above Falmouth Harbour; Helston, near Falmouth; Hills behind Greenock; Crinan Canal, Argyleshire; Culross, Perthshire; Arran, Scotland; Galway; Donard Lodge, Co. Down, Ireland." Professor Babington, however, doubts if the same plant is intended by Dr. Arnott (*Bab. Man. ed.* 5, p. 62), and thinks some other species may have been mistaken for it. Under the name of *H. grandifolium* the present species "is stated by Reichenbach (*Icones Fl. Germ, vi.*, 70. *f.* 5193) to grow in Arran, Scotland" (*Bab. Man. ed.* 2, 60); but Mr. Watson (*Cyb. iii.*, 330) thinks that "there is every reason to suppose an error in the report, not unlikely *H. hircinum* may have been thus misnamed." There can be no doubt that the occurrence of this plant in Britain needs investigation; and it is to be hoped that further search will establish it as a genuine native.

H. hircinum, L. This common and well-known ornament of our shrubberies and gardens has occurred without the bounds of cultivation in several places. Many errors have arisen from the confusion of this species with *H. anglicum*, which is stated to be a distinct species, though much resembling *H. hircinum; H. Androsæmum* has also been occasionally thus misnamed. In Cornwall, our plant is stated by Mr. Gifford to occur near Falmouth:—"While residing at Falmouth, in 1845, I gathered this plant in that neighbourhood, and pointed out the station to my friend Miss Warren; in her opinion it was not truly wild,—it would appear, however, that it is now quite naturalised in that locality." *Phyt. i.*, 518, *N.S.*, (see p. 357.) In Kent, it is said to be "pretty well established in the village of Ash" *(Phyt., v.*, 182, *N.S.)*; but perhaps this may only allude to its occurrence in gardens. Mr. Syme, in *E. B., ed.* 3, *ii.*, 146, states that he has it from the same county. "There is a note upon an unpublished drawing, prepared for *Eng. Bot.*, which states that Relhan found this plant growing at Impington, 'by the side of a pond near the great

Digitized by Google

house in immense quantity, in 1799.' I do not know if the plant still continues there, as is probable, but it certainly has no claim to be considered as native." *Flora of Cambridgeshire*, 44. "The drawing for *E. B.* was made from a plant growing in Haughley woods, Norfolk, the locality where *H. elatum* was found." *E. B., ed.* 3., *ii.*, 146. In Lancashire, it occurs "in great abundance and luxuriance, sometimes attaining the height of from four to five feet, amongst thickets of brambles, &c., in the old lane by Ince Blundell [near Liverpool.] There is no trace of its having escaped from cultivation." George Kirk, in *Phyt. iv.*, 142, *N.S.* I have a specimen labelled "near Liverpool," perhaps from the same locality. It "has been observed in Yorkshire, near Settle." *H. B. P.*, With reference to its appearance in Scotland, Mr. H. C. Watson remarks, "I have a specimen labelled by the late Professor Graham—'*H. Androsæmum*, from a neglected shrubbery at Touch.'" *Cyb., iii.*, 330. It is supposed to have occurred in Ireland, on the banks of the Glanmire river, whence it was recorded as *H. anglicum*. See the preceding species, p. 357.

H barbatum, L. "Said to have been found by Mr. Don, 'by the side of a hedge near the wood of Aberdalgy, in Strath Earn,' Perthshire. No other botanist having met with examples, we cannot suppose this easily-seen species to have been either native or naturalised in this one locality, and in which it is now probably extinct." *Cyb. i.*, 254.

Order XIX.—GERANIACEÆ.

Erodium ciconium, Willd. Is recorded by Mr. Irvine from Wandsworth steamboat pier, where it was "plentiful and strong for some years." *Phyt. iii., N.S.;* and doubtfully from the same locality in H.B.P., 753. A native of the South of Europe.

E. malacoides, D.C. Mr. Hobkirk has kindly favoured me with a specimen of this plant, which he collected in 1858, on a "shoddy heap," near Huddersfield. Owing to the distribution of the "shoddy" over the adjacent fields, the species has now disappeared from that neighbourhood. A native of the South of Europe.

E. littoreum, Willd. Occurred "near the Chelsea Old Waterworks, Pimlico." *H.B.P.*, 752. In *Phyt. iii.* 335, *N.S.*: the locality is described as being "on the Middlesex side of the river, near Pimlico," where it "was only observed one year, late in the season, at the south of the Grosvenor Hotel." (p. 339.) A native of the South of Europe.

E. cygnorum, Nees. "The Rev G. Pinder has obligingly furnished

Digitized by Google

us with specimens of a plant identified by Babington with *E. cygnorum* of Nees von Esenbeck, collected on 'waste ground near Guiseley,' during the present summer, [1854.] It is a native of West Australia, and he suggests that the seeds have been introduced among wool." *Supplement to the Flora of Yorkshire*, 179.

(To be Continued.)

Reports of Societies.

Botanical Society of Edinburgh.

XXIX. SESSION—IV. MEETING.

The society met on Thursday, 9th February, at 5, St. Andrew Square—Professor Balfour, V.P., in the chair.

Before commencing the public business, Professor Balfour alluded to the loss which the society had sustained in the death of Dr. Hugh Falconer, which melancholy event took place in London, on the 31st of January last.

The following communications were read:—

I. Contributions to the Flora of Otago, New Zealand. By W. Lauder Lindsay, M.D., F.R.S.E., F.L.S.

II. Remarks on some Seedling Coniferæ raised from seeds ripened in Britain by Mr. M'Nab.

Professor Balfour called attention to the recent observations of Mohl and others, relative to the self-fertilisation of the flowers of *Oxalis*, *Viola*, *Specularia*, *Impatiens*, *Fumaria*, &c.

Dr. J. B. Wood transmitted a notice to the effect that Professor Schimper was about to publish some fasciculi of mosses, containing 200 species, not met with in the British Flora, or only very rarely, and such as, if found, have only been met with hitherto in a barren state. The price of each collection is 100 francs.

XXIX. SESSION.—V. MEETING.

The Society met on Thursday, 9th March, at 5, St. Andrew Square—Dr. Alexander Dickson, President, in the chair.

Dr. Balfour stated that he had received a letter from Dr. Murchison, in which he says that the scientific men in London have set agoing a subscription for a memorial to the late Dr. Hugh Falconer, and that it is proposed to have a bust, and a fellowship in natural science in the University of Edinburgh. Dr. Balfour also alluded to a new work now in process of publication, entitled "Contributions towards a Cybele Hibernica; being Outlines of the Geographical Distribution of Plants in Ireland"—by D. Moore, Ph. D.,

Digitized by Google

F.L.S., and A. G. More, F.L.S.

The following communications were read :—

I. Notice of rare plants collected in the south-west of England. By F. Naylor, Esq.

II. Notice of Esparto. By the Right Hon. the Lord Provost.

III. Note on the discovery of *Neotinea intacta* (Reich.) in Ireland; by A. G. More, F.L.S. Communicated by Dr. Balfour.

The plant was discovered by Miss More, in April 1864, at Castle Taylor, about six miles inland from the Bay of Galway. In the same field with the plant occurred a rare species of Hawk-moth, *Anthrocera minos*. It is remarkable that in Killarney *Arbutus Unedo* is associated with two local species of insects, *Notodonta bicolora* and *Hydrelia Banksiana*. A Mollusk *Geomalacus maculosus* is also peculiar to the Killarney district. A specimen of *Neotinea intacta* was exhibited, and presented to the herbarium.

Dr. White stated that *Anthrocera minos* had also been met with in Argyllshire and Kincardineshire.

IV. Summary of some of the more interesting Botanical Papers published in France since July 1864. By G. M. Lowe, Esq.

In this paper the author alluded to the remarks of Boussingault on vegetation in darkness; to the chemical researches on vegetation by M. Corinwender; to M. Chatin's observations on *Balanophoraceæ*; M. Jodin on Chlorophyll and its connection with light; M. Godron on the morphology of *Cruciferæ* and of *Fumariaceæ*; M. Bazin on the spores of *Achorion Schœnleinii*; M. Halst on the chemistry of *Cotyledon umbilicus*; and M. Gaston de Saporta on plants with deciduous leaves in the gypsum of Aix.

Letters were read from Mr. John Sim, Perth, as to the mode of growth in the *rhizome* of *Circæa alpina*, and on the transmutation of species.

Dr. Alexander Dickson exhibited specimens of *Peziza coccinea* from Arniston Woods, and a cone of *Pinus coulteri* with the scales numbered so as to exhibit the 13-34th arrangement.

Observations.

Red necked Grebe.—I have just added to my collection a female Red necked Grebe, *(Podiceps rubricollis)* which was shot on the river Calder, near Wakefield, on the 20th of February. A Goosander was captured also on the Calder, at Stanley, near Wakefield, on the 10th of February, and brought to me for preservation. Geo. Lumb, Wakefield.

Coast round Blackpool in March.

March 24th, 1864.—Blackpool, as the name would lead us to infer, is built on the verge of a vast moorland tract, that extends south towards Lytham. The peat, which is chiefly

Digitized by Google

consumed by the poorer classes, is usually found from four to five feet below the surface, the supersoil being chiefly of a light porous nature. The coast consists chiefly of marl and clay, the soft shaly nature of which is continually crumbling under the action of the air and tides, and thus are revealed solid concrete masses, that often assume grotesque and curious shapes! The formation of these solid isolated masses would seem to be this:—Water, charged with carbonate of lime, as it filters through the soil converts those portions with which it has affinity into concretions, which take the shape of the substances so percolated by the petrifying quality of the water. These conglomerates are frequently used as rock-work in the gardens of the lodging-houses. The coast north and south of Blackpool is far from interesting in the spring of the year, still we may find even then something that may be thought worthy of attention. In rambling towards Fleetwood, I observed on the sand-hills, pretty little plants in full flower of *Cerastium tetrandrum* with its tetramerous arrangement of inflorescence. Botanists usually consider this plant entitled to specific distinction, though it may prove after all only one of the forms of the protean *C triviale*. With it, and growing like it, imbedded in the sand, was the Scurvy-grass (*Cochlearea Danica*), with its cruciform flowers tinged with pink. The same remark may perhaps apply to the claim of this latter plant, to be ranked as a species, since the reputed normal plant, (*C. officinalis*) is undoubtedly very apt to be influenced by soil and situation. Still it is so named in many of our best text-books on British botany. I heard and saw the Wheatear, (*Saxicola Œnanthe*) that had come to us thus early from the South of Europe. It is a lonely bird that usually takes up its summer quarters on our downs or moorlands. Its very retiring habits cause it to be often regarded with superstition by our rural population in the North. The Mat-grass, (*Ammophila arundinacea*) one of the true grasses, is of essential service in binding together the shifting sands on the coast. When the matted roots are bared by the tide, the economy is at once apparent. Fine canes of the Raspberry, as strong as those in garden cultivation, were growing imbedded in sand above tide-mark. The Pewit, already returned to his nesting-place, was giving out that strange, wild, and dreamy cry, that he chiefly utters in the breeding season, as he sails in wheeling, flapping flight over the fallows, where his mate is busily engaged in planning the future duties of incubation. The distance from Blackpool to Lytham by the coast is about ten miles. The coast I found even less interesting than that

Digitized by Google

to the North of Blackpool. The Ringed Plover (*Charadrius Hiaticula*) kept running along the edge of the waves with surprising rapidity, picking up tiny mollusks and crustaceans here and there as the waves retreated, and uttering all the time his happy, whistling notes. This bird is particularly partial to tidal rivers, such as the Ribble, where extensive mudflats prevail on the ebbing of the sea. The Grey Gull (*Larus canus*) is apt to make incursions inland. I saw it not unfrequently busy following the plough and consorting with the rooks for the purpose of picking up the worms and grubs thrown to the surface. Its notes when alarmed on the furrows were singularly harsh and grating, and so different from those that it utters on the sea, that I could not but fancy that it must have been taking a lesson in scolding from the knavish rook! On my return, the plantations at Lytham Hall, resounded with the cooings of the Ring-dove, and the flapping of the wings of the pheasants before going to roost for the night. The deep flute-like notes of the Blackbird, and the drowsy cawing of the Jackdaw, were among the last sounds of day. —PETER INCHBALD, Storthes Hall, March 17th, 1865.

Aberdeenshire Plants.—In August 1864, during a stay of ten days at Collieston, a fishing village on the east coast of Aberdeenshire, I had an opportunity of having a few botanical rambles within a radius of three miles of the above named place. I either collected, or observed the following plants, omitting some of the very common species.

Arctium Lappa, abundant about the village.

Anthyllis vulneraria, not uncommon.

Elymus arenarius, common.

Cakile maritima, rather local among sand, in full flower.

Gentiana campestris, not uncommon.

Ranunculus sceleratus, a few plants.

Glaux maritima, not plentiful.

Salsola Kali, rare.

Ligusticum scoticum, rather local. Sea side, among rocks, not common.

Lycopsis arvensis, frequent.

Conium maculatum, about the village, abundant.

Narthecium ossifragum, common.

Parnassia palustris, abundant.

Habenaria viridis, rare.

Plantago maritima, frequent.

P. coronopus, abundant.

Drosera rotundifolia, rather local, abundant.

Erodium cicutarium, frequent.

Pimpinella Saxifraga, frequent.

Lithospermum maritimum, very sparingly.

Spergularia rubra, few.

Silene maritima, abundant.

Sedum anglicum, frequent.

Digitized by Google

Asplenium marinum, a few plants.
Thymus Serpyllum, abundant.
Statice Armeria, abundant.
Empetrum nigrum, not uncommon.
Carlina vulgaris, not common.
Myrica Gale, very local.
Hypericum humifusum, few.
Sagina maritima, not uncommon.
Comarum palustre, frequent.

On Salix Davalliana and Salix petræa in "Salictum Britannicum Exsic:" Leife.—I beg to observe for the benefit of the possessors of the *Salictum Britannicum*, Leife, that the *leaves* of No. 74, *S. Davalliana*, have been by mistake placed with No. 84, *S. petræa*, and the *leaves* of No. 84 have been put with the amenta of 74, thus causing much confusion in the two—hence, perhaps, the remarks of Mr. Borrer on the labels of both these two species, or rather varieties according to Dr. Anderson, of *Salix phylicifolia*.— JAMES WARD, Richmond, Yorkshire.

Notes and Queries.

Monstrosity of Linaria spuria.— Might I enquire if any of the readers of the "Naturalist" have ever noticed any monstrosity of the smaller species of *Linaria*, (besides *L. vulgaris*, var. *peloria*, which is so well known.) Last summer, when in Essex, where *L. spuria* grows abundantly in the corn fields, I found one plant with all the flowers departed more or less from the normal type; one flower for instance had two spurs, another three. I should be glad to know if this is often the case. I searched in vain for another plant of *L. spuria* having this peculiarity.—J. C. MELVILL, Trinity College, Cambridge, March, 1865.

Correspondence.

FLORA OF BUCKINGHAMSHIRE.

(To the Editors of the Naturalist.)

GENTLEMEN,—Will you allow me a short space in your columns to ask for assistance in compiling a work on the above subject? The Flora of the county of Buckingham is, I am sure, from the comparatively small attention which I have been able to pay to it, an extremely rich one: and it is a singular fact, that, with one or two trifling exceptions, no one has botanised in it to any extent. The lists given for Buckinghamshire in the *Botanists' Guide*, and in Mr. Watson's later edition of the same work, are remarkably meagre: all, or nearly all of the localities there given being confined to one or two districts. A copious list of Marlow plants in the old series of the *Phytologist*, and sundry smaller articles in the new series of the same, complete the printed information which I have been able to collect relative to the botany of the entire county: this will show how much yet remains to be done. I have no doubt that many

Digitized by Google

of the readers of the *Naturalist* have in their herbaria two or three specimens of plants from Buckinghamshire: if such would forward me the localities of these, they would render me great assistance. If any one can inform me of any work besides those already mentioned, wherein I may find printed information on the plants of the county, I shall be equally obliged. I am sure that the plants of the county merit attention: in the neighbourhood of High Wycombe alone, are such rarities as *Dentaria bulbifera*, *Daphne Mezereum*, *Orchis fusca*, and a host of others. May I hope, therefore, that this appeal may not pass unanswered? "The smallest contributions will be thankfully received" by yours, very truly, JAMES BRITTEN.—Address 18, Shawfield-street, Chelsea, London, S.W.

Exchange.

British Shells.—I shall be glad to exchange Foreign for British, or British for British Shells of various localities.—WM. RICH, 14, Great Russell Street, Bloomsbury, London.

Original Articles.

CONSIDERATIONS ON "*SPECIES*" APROPOS OF A NEW WORK BY M. JORDAN.

BY FRANÇOIS CREPIN,

Professor of Botany à "l'Ecole d'Horticulture," Gand.

(Continued from page 239.)

Besides he himself informs us:—"In speaking on a succession of facts carefully observed by ourselves, we may, by means of a *legitimate induction*, arrive at a *well-assured judgment*, on the totality of analogous facts which we have not been enabled to observe with the same care....."(5)

We must raise against this criterion or against the method of using it an objection of the gravest character. Is it *really certain* that no variation can survive longer than five, ten, fifteen or twenty years? Why confine ourselves to so small a number of years? Is not such a limitation altogether arbitrary? May it not be that a great number of these forms remaining stable for five, ten, fifteen or twenty years are really, as the partisans of the old school hold, merely varieties already pretty ancient,—varieties, which during the lapse of several centuries, have acquired a certain habit, more or less fixed by time? This is a simple hypothesis, but

(5) Loc. cit: p. 17.

Digitized by Google

it is one which *cannot be quietly pushed on one side*, and which must throw a very grave doubt on the legitimacy of the new species. Besides, the partisans of the new school suspect the existence of more or less persistent varieties, since their experiments have been extended over several successive generations. Suppose every variety should return to its original type after the first generation, and thus, that a first or second sowing should suffice to assure us of the value of the form operated upon; or it may even persist after several successive sowings, still the term fixed for its persistence is altogether arbitrary, and cannot lead to absolute certainty. If there are varieties produced on which time has impressed a certain mark—which have acquired certain differences that remove them slightly from what may be taken as the typical form, is it absolutely certain that these marks or divergences ought to disappear after the first, second, or third generation? If these differences still remain after a considerable number of years, during which they are experimented on, have we any right to conclude from this *momentary stability* that the forms thus remaining the same are not varieties, but really true species? We are not authorised in drawing such a conclusion, for we cannot be certain that this stability will be indefinite. May it not be, that, after five, ten, fifteen or twenty years, by a more extended and better understood trial, on the habit assumed by any form, its differences, would, little by little, altogether disappear? This is quite possible, and once admitting its possibility, it follows logically that any form having remained unchanged for ten or twenty years may equally well be considered a simple variety as a good species, and that every species based upon the sole criterion of its *momentary persistence* cannot be proposed with certainty as a true species.

In our opinion, the proofs to which the new creations have been submitted are not a true criterion. Persistence during a certain number of years can only furnish a *presumption* of indefinite stability, but not a *certainty*. This is a point on which we must strongly insist. Nevertheless, in spite of our well-known attachment to the old ideas, if we could have an entire confidence in the results of the cultivations, made by the partisans of the new school, we should not delay, provisionally, to give our preference to the new species, for they are more or less proven, whilst the Linnean types, generally speaking, rest only on hypotheses—on a certain manner of observing. The latter may be veritable species, but it is not impossible that they may be only assemblages of distinct forms, which botanists have arbitrarily grouped together, in the same way as genera and families. But

Digitized by Google

our confidence in the results of M. Jordan's experiments, and those of his followers, is far from perfect, since our own observations and those of the partisans of the Linnean School lead to quite a different result. In our opinion, the proofs to which the new creations have been submitted do not constitute a *veritable criterion.* Are we deceived? Are the other Linnean observers labouring under an illusion? We do not think so, and therefore we must call in question the constant stability of the multitude of forms described by M. Jordan. Had we experimented *on materials altogether similar* to those of this gentleman, should we have arrived at the same results as he has? We cannot answer this question, for, so far, we have not experimented on his identical forms. From the contradictory facts we have established—from the uncertainty which the application of the criterion of the new school entails—from the absence of a really practical criterion in the old school, we cannot arrive, at present, at any logical conclusion, either with regard to the new types or the old ones. Nevertheless our own studies and observations, and perhaps also our prejudices, incline us to give the preference to the latter. It is possible that some day we may have to acknowledge ourselves in error, and that facts may compel us to rally on the side of those doctrines which we now combat.

Let us now examine in more detail the manner in which the partisans of the new school discriminate and delineate their species. In the first place, they are led to recognise amongst the forms constituting the ancient types several which may be easily distinguished, the one from the other, by an assemblage of characters sufficiently marked and persistent. Little by little, analysis pushed still further, the observations become more minute, and they find that what they had taken for types—unities—are not such. As a striking example of this subdivision, we may cite, 1st, the *Erophila glabrescens* of Pugillus, which becomes in the "Diagnoses" *E. medioxina* and *E. oblongata*; 2nd. *Thlaspi perfoliatum* of Pugillus, which is divided into *T. perfoliatum* and *T. martiale.* These are however, the only two glaring subdivisions in the "Diagnoses;" but it is not improbable that after a succession of gropings, after many variations, the author of this volume has finally arrived at what he now considers as distinct types, or units. Has he not oftentimes been led to subdivide what had at first appeared to him as simple? He might, indeed, allow that he has groped, that what he had believed to be simple, had after a more profound examination and better conducted experiments, proved to be complex, but that this is only the progression of all scientific research, and that we ought not to reproach him

Digitized by Google

for what is in the nature of things. We do not reproach him with this; we would only suggest to him the question, that after all these fluctuations, is he *sure* that he has seized the *real unit, perfectly limited, constant, and invariable, essentially separated every one from the other?* He would answer in the affirmative. For ourselves, we are far from certain of it; first, because the criterion is *defective*, and secondly, because we can scarcely believe, spite of all his activity, which is justly admitted, that he has had the time and the prodigious patience to make all the comparisons required for the numerous new types which he proposes. We think, that in a great number of cases, he has been content with analogies, and that he has inferred the general from the particular, a method which frequently leads to error, unless we suppose that all the forms in one genus or one family have the same degree of stability or variability, which is scarcely probable. Take, for example, the genus *Erophila*, (6) which already numbers fifty-three distinct types for France alone, and which, "when all the forms which exist in various parts of this country have been made the subject of attentive study, and compared together in the living state, may reach to more than one-hundred," and imagine what astounding patience must have been required to recognise with certainty the momentary stability of these fifty-three types. Before being enabled to establish them, it was requisite in the beginning to make a first division, furnishing two principal groups; these two had then to be subdivided into two and seven secondary groups. Long and patient comparisons had then to be made, in order to ascertain that the forms in the one group do not pass into the forms of the other,—that those of each secondary group never present the characters of a neighbouring secondary group. Each of the sub-groups must have been separated into species or units. Each unit must have been studied in a sufficient number of examples, and this during several generations. The individuals produced by generation, must have been compared with their parents and their descendants. All the organs must have been passed under review in each generation, the compass must have been used to measure the leaves and the internodes, almost to a *millimetre*, the glass to count the hairs, &c., &c. When we know by what minute characters—almost indiscernible—the units of the genus *Erophila* are separated from one another, we are amazed at the almost fabulous patience which must have been exercised in making these delicate comparisons upon thousands and thousands of individuals! Besides, in order to arrive at a sure result, these fifty-three types should have

(6) "Species 53 sequentes ex Draba verna L. typo." Diagnoses p. 207. [Eds. Nat.]

Digitized by Google

been cultivated, for as M. Jordan confesses, and as we shall have occasion to acknowledge below, a good and complete comparison of these species, *so closely related*, can only be made on the living specimen. However little, certain individuals of each unity *may oscillate between certain narrow limits*, and this is a case which may be presented, what patience must be required to follow, during several generations, these exceedingly slight variations. Before establishing any unit, it is absolutely indispensable to be assured that the slightest differences—an increase of a millimetre in the length of the pedicels,—a slightly increased separation between the lobes of the petals,—a little darker tint in the sepals—disappear or have no permanence; for if certain individuals of any unity whatever, have preserved one or other of these slight differences, if they have consequently remained stable,—such ought to be placed on one side to form a new unity. A single difference, be it but of *a hair*, if persistent, ought, to follow out the principle logically, to suffice for constituting a distinct type, for we have not any acknowledged balance for weighing the value of a persistent hair—for appreciating so extremely minute a character—which may be as important as that which strikes our eyes at once. This hair, from the moment that it is found to be persistent for five, ten, fifteen, or twenty years of trial, should be of great value; it ought to be considered as the visible sign of a separate existence—of a "*nature distinct, created in time and space, corresponding to a distinct idea, conceived from the beginning in the Divine mind.*"[7] Let it not be imagined that we are jesting at the expense of the new school; we do but carry out their ideas to their ultimate results—results to which they must be inevitably led, if they would be logical. Has M. Jordan elucidated the genus *Erophila* with all the care he claims? Possibly he has. The units of this genus are distinguished from one another only by very small matters; but these little things—these trifles if you will—constitute for each type an assemblage of characters which are only valueless to the Linnean School, who require differences on which they may place their finger without hesitation, and which may be recognised at a distance. But why also exact good and marked differential characters for the species? What gives the greater value to these well-marked characters? It would be difficult to say. In the actual state of science, it seems to us that we ought to accord provisionally, more value to the minute characters of tested new species than to the larger characters of the ancient types, since, as we are assured, they have persisted for several generations, and are stable and unchanged; the others should be but generic or sectional characters.

(7) Loc. cit., p. 10.

Digitized by Google

OBSERVATIONS ON REPTILES.

By W. R. Tate.

As I have kept live Reptiles of various sorts constantly for the last two years, and at intervals for some time previously, and have spent many days in catching them, perhaps a few observations of mine on those little-studied creatures may interest some readers of the "Naturalist."

Crested Newt, (*Triton palustris.*)—I lately had one which I named "Neptune," because, I suppose from some accident, one of the toes of his right fore-foot was divided into three little fingers, looking like the trident of that god. A female once laid four eggs in my tub, but they came to nothing. They were the colour of those of the Cochin China hen, and sank to the bottom of the water. The tip of the tail of this Newt is rather brittle, but not nearly so much so as that of the lizard and blindworm. They sometimes bite when first taken, but cannot make one feel. Before "Neptune" died a pair of water beetles, (*Hydröus piceus*) attacked him and devoured the flesh off his tail. In winter it loses the lobe of its upper lip.

Common Toad, (*Bufo vulgaris.*) I have at present a nice specimen of the toad, which croaks loudly whenever touched. Another croaking fellow, together with a noisy Natterjack, of my catching, is in the Zoological Gardens. Both croaking toads are very regularly spotted with black. They were caught in the adjoining parishes of Cobham and Esher, in Surrey, and are possibly only varieties. When watching an insect which they intend to devour, toads keep twitching their hind toes most comically with excitement. When devouring a large worm they use their fore-feet as hands to push it into their mouths, and also to pull out moss, &c., which may have got in with the worm. My Toads (I have two young ones besides the adult) are now so tame that they never dribble over me when I touch them. Last September I was bringing one home in a canister with a lizard. After walking about a mile I looked into the tin, and found that the Toad had dribbled over the lizard, which was gasping. Soon after being introduced into his box my large one scraped a hole in the moss with his hind-feet, in which he took up his abode. I have since put a mud Tortoise in with him, which turned him out and took possession of his hole. What may be called the thumb on each fore-foot of the Toad is covered on the back with very hard raised skin, to protect it from abrasion by its rubbing against the body when walking.

Digitized by Google

NATTERJACK, (*B. calamita.*) In point of intelligence this is to the toad what the Chimpanzee is to the Orang. Whoever has seen those two Apes together in the Zoological Gardens will understand me. The other day I put a Toad and a Natterjack into a new box together. The latter spent the first hour in walking and climbing all about the box to examine its new abode; the former kept crouched in the corner in which I placed it. There is a curious difference between the eyes of the two species: in the daytime those of the Natterjack are dull and expressionless, the pupils being contracted into mere specks; while in the night they are as beautiful as those of the toad, yet the Natterjack is much the more diurnal in its habits. I consider a full sized *B. calamita* the handsomest of our indigenous reptiles.

FROG, (*Rana temporaria.*) I have a frog in my vivarium which generally croaks when handled. Last October it cut a slit in its side by leaping against the sharp edge of a tin canister in which it had been travelling. I did not wish to kill it as it was a very pretty one, and could not push in the protruding entrails, so cut them off, and staunched the wound with gum water: five days after it was well enough to eat three flies, and is now in as good condition as any of my reptiles. It catches flies from greater distances than the toads can, as it jumps and throws out its tongue at the same time. I once had a frog spawn while in my possession. Two years ago I remember seeing a field mouse trying to catch a frog in a ditch, but my looking on frightened the former away.

N. AMERICAN BULL FROG, (*Rana pipiens.*) One in the Zoological Gardens has lately got drowned. I have had a young toad die from being unable to get out of the water; but should not have thought it possible in a full grown Bull Frog.

TREE FROG, (*Hyla—?*) There is a dirty white Tree Frog, from Queensland, in the Zoological Gardens. As it sticks on the glass side of its cage it looks like a lump of putty.

RATTLESNAKE, (*Crotalus horridus.*) The noise of the rattle always seems to me to sound from the opposite direction to where the creature is. May not this be so, that an animal in attempting to fly from its deadly foe often runs into its jaws?

COMMON VIPER, (*Pelias berus.*) It has been said that this will never strike at an invulnerable object more than once; but those which I have caught have kept biting for some minutes at the bits of furze with which I hit them. One of these was of the azure-bellied variety, twenty-two inches long; I extracted his fangs and he soon after died. I caught him on Wimbledon

Digitized by Google

Common, very near a flock of sheep which were rambling about among the fern. In the spring of 1863 I saw on Wisley Heath, Surrey, a beautiful black and white Viper, but not then knowing how rare a variety it was, did not catch it. It was subsequently caught and destroyed by a peasant. Last summer I just missed a fine black one at Snaresbrook, in the corner of Epping Forest, nearest to London. There had been a school treat close by the day before. It is a wonder that children on such occasions (which are frequent there) do not get bitten, since adders abound; they seem emboldened by the constant sight of visitors, and do not glide off so quickly as in Surrey.

THE SLOWWORM, (*Anguis fragilis*) changes its skin about once a month in summer. It does not come off whole like that of the snake, but peels off in little bits. I caught one at Wimbledon in 1863, twelve-and-a-half inches in length. The tongue is divided into two round knobs at the end, instead of being merely slit as is the case with the lizard. They are rather shy in confinement. The young Slowworm is of a beautiful gold colour.

THE COMMON LIZARD, (*Zootoca vivipara.*) thrives as well as any reptile in confinement. Last summer I had two broods of young born; the first consisted of five, the second of six. They were born on July 16th and 17th. At first they seemed healthy, and ate and drank, but gradually all fell off and died. The last died on August 19th. I feed the lizards on insects: they prefer flies and spiders, but also relish earwigs, small moths, caterpillars, &c. When hungry they will eat worms, but evidently they do not like them much. Probably when wild they eat them only in wet weather. Their skin, which in warm weather is changed every three weeks, peels off bit by bit like the Slowworm's When a tail is broken off it begins to grow again in exactly two months, and is completed in another month; but is then far inferior in length and beauty to the original. The tail when sprouting resembles bee's wax. The reptile keeper in the Zoological Gardens tells me he once caught a lizard, on Hampstead Heath, with two tails: in winter the tails are not reproduced. I have a male whose tail came off on August 27th, and which is not yet (February 20th) sprouting at all. They soon become exceedingly tame. I keep them in small boxes covered with black gauze, on which they frequently crawl with their beautiful under parts uppermost. One now living in my box was caught on April 12th, 1864. In winter, when not torpid, they support life by drinking an immense quantity of water. The heaths near London on which they most abound are Hampstead, Putney, and Snaresbrook, particularly the last.

Digitized by Google

Crested Anolis, (*Anolis velifer.*) A male specimen of this curious West Indian lizard has been very kindly given me by Mr. N. L. Austen, of Croydon. It is intermediate between the geckoes and the iguanas. It has the sticky feet of the former, and the pouch of the latter. The body of my specimen is about four-and-a-half inches, and his tail six-and-a-half inches long. The colour is whitey-brown, barred with black. He is excessively quick both in running and jumping. I have placed him in the box with the common lizards, and it is amusing to see him put out his pouch indignantly whenever they approach him. When one treads on his toes he gives it a bite. The pouch when distended is very beautiful—brilliant red with some blue in the middle; but it is only put out when the creature is irritated.

Mud Tortoise, (*Testudo pusilla.*) I have a specimen of this reptile, bought in Leadenhall market, December 10th. Up to this time (February 20th) it has eaten nothing. I put him in with the Batrachia, and he possessed himself of the old Toad's hole. Sometimes when I put him on the table he goes to the edge and throws himself off, taking care to tuck in his head out of danger.

I shall always be glad to correspond with anyone on herpetological subjects; to forward specimens of the Natterjack Toad; and to show my collections to those who like to call.

4, *Grove Place, Denmark Hill,*
Camberwell, London.

NOTES ON NORFOLK ENTOMOLOGY—LEPIDOPTERA.

Part II.

By T. E. Gunn.

Nocturni.

Smerinthus ocellatus. Uncommon. I took a few larvæ in 1863, feeding on willow.

S. Populi. Common. I obtained a specimen last season, the greyish brown markings of its fore wings being of a much paler hue than in ordinary specimens.

S. Tiliæ. Uncommon.

Acherontia atropos. This magnificent species although sparingly met with in its imago state, in the larva and pupa is far from being uncommon—

Digitized by Google

specimens are obtained every season in almost every potato field in this neighbourhood; during the autumn of 1861, the owner of a potato-piece, in the parish of Heigham, Norwich, dug up as many as forty pupæ, which a neighbour of his purchased with the intention of rearing the following season. He placed them in a large flower-pot, covering them carefully with mould, standing it in his hot house, quite expecting from the extra warmth applied to them to produce the imago at a much earlier period than usual; great, however, was his disappointment when only one made its appearance, that being in a crippled condition. I know of an instance of the perfect insect emerging from the pupa-case when laying in an exposed condition; a caterpillar having escaped from its cage, and changed to its second stage on a piece of wood that laid in the cellar, the moth was caught while fluttering about and making many vain endeavours to escape from its unnatural locality; the pupa-case being found in the above-named situation. A person with whom I am acquainted is in the habit of placing caterpillars of this species amongst shreds of cork, rotten wood, &c., by which means he sometimes succeeds in bringing out the moth in perfect condition. The larva of *Acherontia atropos* subsists chiefly on potato leaves, but has occasionally been found on the privet-fence. I saw two examples last season which were taken by a lad while feeding on the latter.

Sphinx convolvuli. This moth is not uncommonly met with, but its larva is rarely obtained. I had the pleasure of examining one last season. It was of a uniform bright green, spotted with brown on its back, and oblique yellow stripes on its sides.

S. ligustri. Common. Its beautiful larva may be seen feeding on almost every privet-fence, in August and September.

Chœrocampa Elpenor. Uncommon. I have seen a few larvæ.

Macroglossa stellatarum. Uncommon. One imago in 1863.

Sesia tipuliformis. Occurred rather abundantly in this locality in 1862, since then I have not seen a single example.

Zeuzera æsculi. Rare.

Cossus ligniperda. Not uncommon. The larva feeds four years before attaining its full growth; it proves very destructive to timber, particularly the willow and elm, as it subsists on the solid wood.

Hepialus hectus. Local. I captured eighteen examples during one evening in July, 1864, at Ketteringham.

H. lupulinus. Common. Appearing in June.

Digitized by Google

H. sylvinus. Uncommon. I obtained two specimens, male and female, in July, 1863.

Zygæna trifolii. Local. Imago on wing during the midsummer.

Z. loniceræ. Same as last.

Z. filpendulæ. Local and rather uncommon. I have examples of this and the two preceeding species in my collection.

Lithosia complanula. Common.

L. quadra. Uncommon.

Euchelia jacobeæ. Rather common at midsummer.

Chelonia plantaginis. Rare.

C. Caja. Common in almost every garden. Although I have bred a good many examples of this species, I have not succeeded in obtaining any particular variations in colour or markings.

C. villica. Rare.

Arctia mendica. Uncommon. Imago in June.

A. menthastri. Not uncommon.

Liparis auriflua. Common.

L. salicis. Uncommon.

Orgyia pudibunda. Uncommon. Bred.

O. fascelina. Rather rare. Bred.

O. antiqua. Common.

Demas coryli. Rare. My friend Mr. W. Smith took three examples in the summer of 1863, he found them resting on the back of an old shed. A day or two afterwards I found a fourth specimen in the same situation.

Trichiura cratægi. Rare.

Pœcilocampa populi. Rare. I caught one in October, 1861.

Eriogaster lanestris. Not uncommon during some seasons, and rather scarce in others. In its pupa state it will sometimes lay two years, the imago emerging early in spring. Mr. Edward Newman says he has had them in the pupa case as many as five years. See Zoologist, page 9259.

Bombyx neustria. Rather uncommon. One in October, 1864.

B. quercus. Common.

B. trifolii. Uncommon. Bred.

Odonestis potatoria. Plentiful.

Lasiocampa quercifolia. Uncommon. June.

Saturnia Carpini. Not uncommon. Bred.

Digitized by Google

ON THE BOTANY OF MALHAM.

By Louis C. Miall.

Part IV.—Lichenes.

In approaching this part of the Botany of Malham, I feel, even more strongly than hitherto, my own incompetence for the task I have undertaken. Indeed, it is only the desire of rendering the list as complete as possible, which induces me to include the Lichens at all. The excellent list furnished by Dr. Carrington to the "Flora of the West-Riding" renders the wish feasible, and any one who takes the trouble to compare this list with it will see how largely I am indebted to the work of others. I have added references which will enable the student of the less modern manuals of cryptogamic botany to identify the species here mentioned. The few plants and stations which are distinguished by the mark of verification (!) have been certified by the kindness of various friends to whom I have sent specimens.

Collemaceæ.

Synalissa symphorea, D.C. (*Collema nigrum*, Ach.) Gordale! Dr. Carrington.

Collema melœnum, Ach. (*C. multifidum*, Schær.) Malham, S. Hailstone.

C. plicatile, Ach. Malham, S. Hailstone.

C. turgidum, Ach. Malham Cove, Dr. Carrington.

C. pulposum, d. *cristatum*, Borr. Among moss below Malham Cove, &c.!

C. tenax, Sw. Gordale, Dr. Carrington.

C. fluviatile, Huds. On rocks in the stream from Malham Cove! Hooker's English Flora, &c. This and the Dillenian station of Snowdon were long the only British ones.

Synechoblastus flaccidus, Ach. (*Collema.*) Gordale, Dr. Carrington.

S. complicatus, Schl. Malham? Dr. Carrington.

Leptogium saturninum, Nyl. (*Mallotium*, Mudd. *Collema*, Ach.) Rocks, Gordale, Dr. Carrington.

Lichenaceæ.

Cladonia alcicornis, Lightf. (*Scypophorus*, Fée.) Malham Moor, Dr. Carrington.

C. gracilis, d. *degenerans*. (*Scypophorus*, Fée.) Near Malham Tarn, Dr Carrington.

C. cervicornis, Ach. (*Scypophorus*, Fée.) Malham Moor, Dr. Carrington Gordale!

Digitized by Google

C. uncialis, L., b. *turgidescens*, Fries. Near Malham Tarn! Dr. Windsor.

C. coccifera, L. Various forms, more or less distinct, occur on Malham Moor!

Icmadophila æruginosa, Scop. *(Calicium*, Ach.*)* Malham Moor, Dr. Carrington.

Ramalina calicaris, Fr. Several varieties occur at Malham!

Cornicularia aculeata, Ach. Malham Moor!

CETRARIÆ.

Cetraria glauca, b *fallax*, Ach. This variety, which merely differs in the colour of the thallus, is common on Malham Moor!

PELTIDEACEÆ.

Peltigera aphthosa, Ach. *(Peltidea*, Ach.*)* Gordale, Dr. Carrington.

Solorina saccata, Ach. Clefts of rocks about Malham Cove!

PARMELIACEÆ.

Parmelia physodes, Ach. On rocks about Gordale! Dr. Carrington has found the apothecia near Malham Tarn.

P. stygia, Ach. Rocks above Malham Cove!

P. caperata, Ach. Malham, Dr. Carrington.

P. Mougeotii, Schær. Near Malham Tarn, Dr. Carrington.

Borrera stellaris, Ach. *(Parmelia*, Ach.*)* Trees at Malham, J. Nowell.

Physcia candelaria, L. *(Squamaria*, D. C. *Lecanora*, Ach.*)* Near Jennet's Cave, Dr. Carrington.

Umbilicaria polyphylla, Fr. *b. flocculosa*, Wulf. Malham Moor, Dr. Carrington.

LYCANORACEÆ.

Pannaria hypnorum, Vahl. *(Squamaria*, D. C. *Lecanora*, Ach.*)* On mosses, Malham Moor, Dr. Carrington.

Squamaria crassa, Huds. Gordale. Crevices of limestone rock, Dr. Carrington.

S. saxicola, Ach. Rocks on Malham Moor!

Placodium callopismum, Ach. *(Lecanora.)* Limestone scars, Malham Moor, Dr. Carrington.

P. candicans, Dicks. Gordale, Dr. Carrington.

Callopisma cerium, var. *stillicidiorum*, Mudd. On dead moss, Gordale. Very rare, Dr. Carrington.

C. aurantiacum, Lightf. Malham, Dr. Carrington.

C. ochraceum, Schær. Rocks around Malham Tarn, S. Hailstone.

C. ferrugineum, Huds. Rocks and loose stones!

Digitized by Google

Lecanora albella, Tch. Trees at Malham! Var. *crenulata*, on slate, Gordale, Dr. Carrington.

L. polytropa, Ach. Rocks on Malham Moor! Not uncommon in Craven generally.

L. glaucoma, Ach. Malham Moor, Dr. Carrington.

L. tartarea, Ach. Malham Moor! The Cudbear of commerce.

Urceolaria calcarea, b. *contorta*. Malham, Dr. Carrington.

U. scruposa, Ach. Walls and rocks on Malham Moor!
Var. *bryophila*, on Malham Moor, Dr. Carrington.

Gyalecta cupularis, Ehrh. Rocks about Malham, Dr. Carrington.

LECIDEACEÆ.

Psora lurida, Swartz. On dead moss in limestone crevices, Gordale! Dr. Carrington.

Thallioidima vesiculare, Hoff. (*Lecidea.*) Pavements on Malham Moor! Crevices of rocks about Malham Tarn!

Leucothecium nigrum, Huds. (*Biatoria.*) Malham Moor, Dr. Carrington.

Bacidia carneola, Ach. (*Lecidea.*) Trees near Jennet's Cave, Dr. Carrington.

B. muscorum, Hook. (*Lecidea.*) On decayed moss, Malham Moor, Dr. Carrington.

Bilimbia sphæroides, Sommf. On moss, Malham Moor, Dr. Carrington.

Lecidea uliginosa, Ach. Malham Moor, Dr. Carrington.

L. calcivora, Ehrh. Rocks and walls about Malham!

Buellia saxatilis, Schær. Rocks on Malham Moor, Dr. Carrington.

Diplotomma calcarea, Weis. (*Lecidea calcarea*, a. *Weissii*, Schær.) Slaty rocks, Gordale, Dr. Carrington.

Melanospora cerebrina, Mudd. (*Opegrapha*, D. C.) Gordale, Dr. Carrington.

GRAPHIDACEÆ.

Opegrapha saxatilis, D.C. Rocks around Malham Cove, and between Malham and Kilnsey!

O. rubella, Pers. Trees, Gordale! Dr. Carrington.

O. scripta, Ach. β. *pulverulenta*, Pers. Trees about Malham!

Arthonia astroidea, Ach., b. *Swartziana*. Malham Cove, Dr. Carrington. Possibly a form of *Opegrapha atra*. See E. Bot., t. 1347.

ANGIOCARPI.

Endocarpon miniatum, L. Malham and the neighbourhood!
b. *complicatum*, Swartz. Gordale, Dr. Carrington.

E. rufescens, Ach. Crevices of rocks in the neighbourhood of Malham!

Digitized by Google

E. cinereum, Pers. (*Sagedia*, Fr. *Verrucaria*, Ach.) On dead moss, Malham Moor; rare, Dr. Carrington.

E. lætevirens, Hook. (*Normandina*, Nyl.) "One specimen was collected by Mr. Stansfield, on rocks above Malham Cove. I saw it when living, but it was lost in the attempt to propagate it, 1857." Dr. Carrington.

Pertusaria globulifera, Sm. Trees about Malham!

Thelotrema lepadinun, Ach. Bark of trees near Jennet's Cave! Gordale!

Petractis exanthematica, Kbr. (*Thelotrema*, Ach.) Gordale and Malham Moor, on rocks!

Verrucaria aquatilis, Mudd. Stream from Malham Cove!

V. plumbea, Ach. Gordale, Dr. Carrington.

V. Dufourii, D.C. Malham, rare, Dr. Carrington.

V. nitida, Schrad. (*Pyrenula*, Ach.) b. *dermatodes*. Gordale, Dr. Carrington.

V. *rhyponta*, Ach. Trees near Jennet's Cave, Dr. Carrington.

V. *rimosicola*, Leight. Parasitic on *Lecidea calcarea*, Malham Moor, Dr. Carrington.

*** Part V. will include the Mosses, Hepaticæ and Characeæ, concluding the series. Any corrections or important additions which may be communicated will be subsequently inserted in the "Naturalist."

Observations.

SUMMER RAMBLES ON THE ORME'S HEAD, LLANDUDNO.

No. I.

This headland is formed of the carboniferous limestone, which here crops out from a chain of submerged rock, that trends from the northern coast of Flint, in a westerly direction, towards Puffin Island, and the Isle of Anglesey. The Flora will consequently be found to contain such plants as delight in the mountain limestone; some being of considerable rarity, and strictly local distribution.

We will begin with the Nottingham Catchfly, *Silene nutans*, one of the Caryophyllaceæ, that abounds on the upper ledges of the rock, and may be readily recognised by its white drooping flowers, which are sweetest in the evening. The capsules of this plant feed the rare *Dianthœcia albimacula*, which has not been taken in Britain since 1816. It is possible it may yet turn up at Llandudno. A case-bearer, *Coleophora leucopennella*, feeds also on the seeds of *Silene nutans* on the Continent, as was mentioned by Mr. Stainton, in a paper read before the

Digitized by Google

British Association, in 1860. I found the larva of a weevil beetle, *Hypena Polygoni*, busily feeding on the seeds of this catchfly, and half buried within the capsule, and on a nearer inspection, I saw the pretty pea-green cases attached to the axils of the stem. From these I hatched the weevil. Thus I had the pleasure of making acquaintance with the beetle in *all* its stages of development. Mr. Westwood remarks that the chief interest of the genus *Hypera* exists in the texture of the cocoon. Another plant, one of the Compositæ, that probably attains at Llandudno its most northern limit, occurs in the utmost profusion on various parts of the Orme. It is the Goldilocks, *Chrysocoma Linosyris*. This plant loves to grow amongst coarse grasses, and is mostly unbranched, though branching stems do occasionally occur. It is a great ornament to the sea-cliffs in autumn. Near the Little Orme were fine tall plants of the Vernal Figwort, *Scrophularia vernalis*, with its yellow flowers; which, as Babington observes, are apt to remind one of the *Calceolaria*. The slimy larva of *Cionus Scrophulariæ* had completely stripped it of its leaves, and many of the brown granulated cases were sticking to the capsules. From these, in a few weeks, appeared my old acquaintance *Cionus*, I had thus another opportunity of witnessing the successive transformations of another beetle. And now for another particularly local plant, mentioned, I see, by Mr. Miall, in his plants of Malham. This is the Hoary Rock-rose, *Helianthemum canum*. Mr. Miall is very particular in pointing out the difference between *H. vulgare* and *H. canum*. I am glad he is so: undoubtedly they are distinct! Probably he will allow me to add a few particulars to his diagnosis. The two plants grow intermixed at the Orme, so that I had abundant opportunity of comparing them. I found that *H. canum* was earlier in flower by three weeks than *H. vulgare*. The foliage, too, has the appearance of being dotted on the upper surface, from the pores showing darker through the pile with which the leaf of *H. canum* is covered. The flowers are much smaller than those of *H. vulgare*, and never open so widely. I have met with the rarer Rock-rose at Whitbarrow, in the Lake District, on the mountain limestone. A curious parasite (*Orobanche Hederæ*) occurs on the roots of the Ivy, reminding one, in the earlier stage of development, of a head of Asparagus. I have met with it on the Orme, and also at Conway Castle. The stem is considerably swollen at the base, so as to resemble a bulb.—PETER INCHBALD, Storthes Hall, April 2, 1865.

END OF THE FIRST VOLUME.

Geo. Tindall, Printer, 12, New-Street, Huddersfield.

Digitized by Google

Digitized by Google

3 2044 106 268 899

Date Due

Digitized by Google